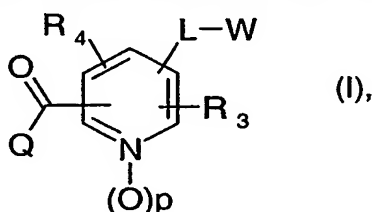


Novel herbicides

The present invention relates to novel, herbicidally active nicotinoyl derivatives, to processes for their preparation, to compositions comprising such compounds, and to their use in the control of weeds, especially in crops of useful plants, or in the inhibition of plant growth.

Nicotinoyl derivatives having herbicidal action are described, for example, in WO 00/15615, WO 00/39094 and WO 01/94339. Novel nicotinoyl derivatives having herbicidal and growth-inhibiting properties have now been found.

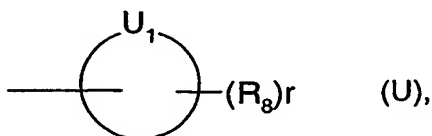
The present invention accordingly relates to compounds of formula I



wherein

L is either a direct bond, an -O-, -S-, -S(O)-, -SO₂-, -N(R_{5a})-, -SO₂N(R_{5b})-, -N(R_{5b})SO₂-, -C(O)N(R_{5c})- or -N(R_{5c})C(O)- bridge, or a C₁-C₄alkylene, C₂-C₄alkenylene or C₂-C₄alkynylene chain which may be mono- or poly-substituted by R₅ and/or interrupted once or twice by an -O-, -S-, -S(O)-, -SO₂-, -N(R_{5d})-, -SO₂N(R_{5e})-, -N(R_{5e})SO₂-, -C(O)N(R_{5f})- and/or -N(R_{5f})C(O)- bridge, and when two such bridges are present those bridges are separated at least by one carbon atom, and W is bonded to L by way of a carbon atom or a -N(R_{5e})SO₂- or -N(R_{5f})C(O)- bridge when the bridge L is bonded to the nitrogen atom of W;

W is a 4- to 7-membered, saturated, partially saturated or unsaturated ring system U



which contains a ring element U₁, and may contain from one to four further ring nitrogen atoms, and/or two further ring oxygen atoms, and/or two further ring sulfur atoms and/or one or two further ring elements U₂, and the ring system U may be mono- or poly-substituted at a saturated or unsaturated ring carbon atom and/or at a ring nitrogen atom by a group R₈, and two substituents R₈ together are a further fused-on or spirocyclic 3- to 7-membered ring system which may be unsaturated, partially saturated or fully saturated and may in turn be

- 2 -

substituted by one or more groups R_{8a} and/or interrupted once or twice by a ring element -O-, -S-, -N(R_{8b})- and/or -C(=O)-; and

U_1 and U_2 are each independently of the other(s) -C(=O)-, -C(=S)-, -C(=NR₆)-, -(N=O)-, -S(=O)- or -SO₂-;

R_3 and R_4 are each independently of the other C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy-C₁-C₃alkyl, hydrogen, hydroxy, mercapto, halogen, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₃alkoxy-C₁-C₃alkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃alkylsulfonyl, C₁-C₃haloalkylthio, C₁-C₃haloalkylsulfinyl, C₁-C₃haloalkylsulfonyl or C₁-C₃alkylsulfonyloxy;

R_5 is halogen, C₁-C₃alkyl, C₁-C₃alkoxy, C₁-C₃alkylthio, C₁-C₃alkylsulfinyl, C₁-C₃alkylsulfonyl, C₁-C₃alkoxy-C₁-C₃alkyl or C₁-C₃alkoxy-C₁-C₃alkoxy;

R_{5a} , R_{5b} and R_{5c} are independently hydrogen, C₁-C₆alkyl, C₃-C₆alkenyl, C₃-C₆alkynyl or C₁-C₃alkoxy-C₁-C₃alkyl;

R_{5d} is hydrogen, C₁-C₆alkyl, C₃-C₆alkenyl, C₃-C₆alkynyl, C₁-C₃alkoxy-C₁-C₃alkyl, benzyl, cyano, formyl, C₁-C₄alkylcarbonyl, C₁-C₄alkoxycarbonyl, C₁-C₄alkylsulfonyl or phenylsulfonyl, it being possible for the phenyl-containing groups to be substituted by R_7 ;

R_{5e} and R_{5f} are each independently of the other hydrogen or C₁-C₃alkyl;

R_6 is C₁-C₆alkyl, hydroxy, C₁-C₆alkoxy, cyano or nitro;

R_7 is halogen, C₁-C₃alkyl, C₁-C₃haloalkyl, hydroxy, C₁-C₃alkoxy, C₁-C₃haloalkoxy, cyano or nitro;

each R_8 independently is hydrogen, halogen, C₁-C₆alkyl, C₁-C₆haloalkyl, C₃-C₆cycloalkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, hydroxy, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, C₁-C₃alkoxy-C₁-C₃alkoxy, mercapto, C₁-C₆alkylthio, C₁-C₆alkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆alkylsulfonyloxy, C₁-C₆haloalkylsulfonyloxy, C₃-C₆alkenylthio, C₃-C₆alkynylthio, amino, C₁-C₆alkylamino, di(C₁-C₆alkyl)amino, C₁-C₃alkoxy-C₁-C₃alkyl, formyl, C₁-C₄alkylcarbonyl, C₁-C₄alkoxycarbonyl, benzyloxycarbonyl, C₁-C₄alkylthiocarbonyl, carboxy, cyano, carbamoyl, phenyl, benzyl, heteroaryl or heterocyclyl, it being possible for the phenyl, benzyl, heteroaryl and heterocyclyl groups to be mono- or poly-substituted by R_{7a} ;

each R_{7a} independently is halogen, C₁-C₃alkyl, C₁-C₃haloalkyl, hydroxy, C₁-C₃alkoxy, C₁-C₃haloalkoxy, cyano or nitro;

each R_{8a} independently is halogen, C₁-C₆alkyl, C₁-C₆haloalkyl, C₃-C₆cycloalkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, hydroxy, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy,

mercapto, C₁-C₆alkylthio, C₁-C₆alkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₄alkylcarbonyl, C₁-C₄alkoxycarbonyl, cyano or nitro;

R_{8b} is hydrogen, C₁-C₃alkyl, C₃-C₆alkenyl, C₃-C₆alkynyl, C₁-C₃alkoxy-C₁-C₃alkyl or benzyl, it being possible for the phenyl group to be substituted by R_{7b};

R_{7b} is halogen, C₁-C₃alkyl, C₁-C₃haloalkyl, hydroxy, C₁-C₃alkoxy, C₁-C₃haloalkoxy, cyano or nitro;

p is 0 or 1;

r is 1, 2, 3, 4, 5 or 6;

with the provisos that

a) R₈ and R_{8a} as halogen or hydrogenmercapto cannot be bonded to a nitrogen atom,

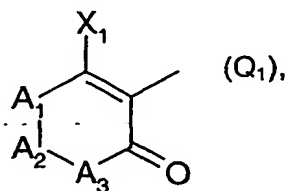
b) U₁ as -C(=O)- or -C(=S)- does not form a tautomeric form with a substituent R₈ as hydrogen when the radical W is bonded to the pyridyl group by way of a C₁-C₄alkylene, C₂-C₄alkenylene or C₂-C₄alkynylene chain L that is interrupted by -O-, -S-, -S(O)-, -SO₂-, -N(R_{5d})-, -SO₂N(R_{5e})- or -N(R_{5e})SO₂-,

c) U₁ as -C(=S)- does not form a tautomeric form with a substituent R₈ as hydrogen when the radical W is bonded to the pyridyl group by way of a -CH=CH- or -C≡C- bridge L or by way of a C₁-C₄alkylene chain L that is interrupted by -O-, -S-, -S(O)-, -SO₂- or -N(C₁-C₄alkyl)-,

d) U₁ as -C(=S)- or -C(=NR₆)- wherein R₆ is C₁-C₆alkyl or C₁-C₆alkoxy does not form a tautomeric form with a substituent R₈ as hydrogen when the radical W is bonded to the pyridyl group directly or by way of a C₁-C₄alkylene chain L;

either

Q is a group Q₁



wherein

A₁ is C(R₁₁R₁₂) or NR₁₃;

A₂ is C(R₁₄R₁₅)_m, C(O), oxygen, NR₁₆ or S(O)_q;

A₃ is C(R₁₇R₁₈) or NR₁₉;

with the proviso that A_2 is other than $S(O)_q$ when A_1 is NR_{13} and/or A_3 is NR_{19} ;

X_1 is hydroxy, O^+M^+ , wherein M^+ is a metal cation or an ammonium cation; halogen or $S(O)_nR_9$,

wherein

m is 1 or 2;

q , n and k are each independently of the others 0, 1 or 2;

R_9 is C_1 - C_{12} alkyl, C_2 - C_{12} alkenyl, C_2 - C_{12} alkynyl, C_3 - C_{12} allenyl, C_3 - C_{12} cycloalkyl, C_5 - C_{12} cycloalkenyl, R_{10} - C_1 - C_{12} alkylene or R_{10} - C_2 - C_{12} alkenylene, wherein the alkylene or alkenylene chain may be interrupted by $-O-$, $-S(O)_k-$ and/or $-C(O)-$ and/or mono- to penta-substituted by R_{20} ; or phenyl, which may be mono- to penta-substituted by R_{7c} ;

R_{7c} is halogen, C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, hydroxy, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, cyano or nitro;

R_{10} is halogen, cyano, rhodano, hydroxy, C_1 - C_6 alkoxy, C_2 - C_6 alkenyloxy, C_2 - C_6 alkynyloxy, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_2 - C_6 alkenylthio, C_2 - C_6 alkynylthio, C_1 - C_6 alkylsulfonyloxy, phenylsulfonyloxy, C_1 - C_6 alkylcarbonyloxy, benzoyloxy, C_1 - C_4 alkoxycarbonyloxy, C_1 - C_6 alkylcarbonyl, C_1 - C_4 alkoxycarbonyl, benzoyl, aminocarbonyl, C_1 - C_4 alkylaminocarbonyl, C_3 - C_6 cycloalkyl, phenyl, phenoxy, phenylthio, phenylsulfinyl or phenylsulfonyl; it being possible for the phenyl-containing groups in turn to be substituted by R_{7d} ;

R_{7d} is halogen, C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, hydroxy, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, cyano or nitro;

R_{20} is hydroxy, halogen, C_1 - C_6 alkyl, C_1 - C_6 alkoxy, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, cyano, carbamoyl, carboxy, C_1 - C_4 alkoxycarbonyl or phenyl; it being possible for phenyl to be substituted by R_{7e} ;

R_{7e} is halogen, C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, hydroxy, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, cyano or nitro;

R_{11} and R_{17} are each independently of the other hydrogen, C_1 - C_4 alkyl, C_2 - C_4 alkenyl, C_2 - C_4 alkynyl, C_1 - C_4 alkylthio, C_1 - C_4 alkylsulfinyl, C_1 - C_4 alkylsulfonyl, C_1 - C_4 alkoxycarbonyl, hydroxy, C_1 - C_4 alkoxy, C_3 - C_4 alkenyloxy, C_3 - C_4 alkynyloxy, hydroxy- C_1 - C_4 alkyl, C_1 - C_4 alkylsulfonyloxy- C_1 - C_4 alkyl, halogen, cyano or nitro;

or, when A_2 is $C(R_{14}R_{15})_m$, R_{17} together with R_{11} forms a direct bond or a C_1 - C_3 alkylene bridge;

R_{12} and R_{18} are each independently of the other hydrogen, C_1 - C_4 alkyl or C_1 - C_4 alkylthio, C_1 - C_4 alkylsulfinyl or C_1 - C_4 alkylsulfonyl;

or R_{12} together with R_{11} , and/or R_{18} together with R_{17} form a C_2 - C_5 alkylene chain which may be interrupted by -O-, -C(O)-, -O- and -C(O)- or -S(O)-;

R_{13} and R_{19} are each independently of the other hydrogen, C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_3 - C_4 alkenyl, C_3 - C_4 alkynyl or C_1 - C_4 alkoxy;

R_{14} is hydrogen, hydroxy, C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, C_1 - C_3 hydroxyalkyl, C_1 - C_4 alkoxy- C_1 - C_3 alkyl, C_1 - C_4 alkylthio- C_1 - C_3 alkyl, C_1 - C_4 alkylcarbonyloxy- C_1 - C_3 alkyl, C_1 - C_4 alkylsulfonyloxy- C_1 - C_3 alkyl, tosyloxy- C_1 - C_3 alkyl, di(C_1 - C_4 alkoxy)- C_1 - C_3 alkyl, C_1 - C_4 alkoxycarbonyl, C_3 - C_5 oxacycloalkyl, C_3 - C_5 thiacycloalkyl, C_3 - C_4 dioxacycloalkyl, C_3 - C_4 dithiacycloalkyl, C_3 - C_4 oxathiacycloalkyl, formyl, C_1 - C_4 alkoxyiminomethyl, carbamoyl, C_1 - C_4 alkylaminocarbonyl or di(C_1 - C_4 alkyl)aminocarbonyl;

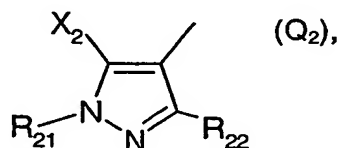
or R_{14} together with R_{11} , R_{12} , R_{13} , R_{15} , R_{17} , R_{18} or R_{19} or, when m is 2, also together with R_{14} forms a direct bond or a C_1 - C_4 alkylene bridge;

R_{15} is hydrogen, C_1 - C_3 alkyl or C_1 - C_3 haloalkyl;

R_{16} is hydrogen, C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_4 alkoxycarbonyl, C_1 - C_4 alkylcarbonyl or N,N -di(C_1 - C_4 alkyl)aminocarbonyl;

or

Q is a group Q_2



wherein

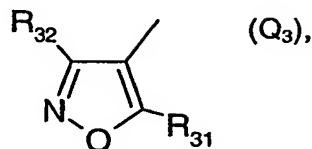
R_{21} and R_{22} are hydrogen or C_1 - C_4 alkyl;

X_2 is hydroxy, O^-M^+ , wherein M^+ is an alkali metal cation or ammonium cation; halogen, C_1 - C_{12} alkylsulfonyloxy, C_1 - C_{12} alkylthio, C_1 - C_{12} alkylsulfinyl, C_1 - C_{12} alkylsulfonyl, C_1 - C_{12} haloalkylthio, C_1 - C_{12} haloalkylsulfinyl, C_1 - C_{12} haloalkylsulfonyl, C_1 - C_6 alkoxy- C_1 - C_6 alkylthio, C_1 - C_6 alkoxy- C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkoxy- C_1 - C_6 alkylsulfonyl, C_3 - C_{12} alkenylthio, C_3 - C_{12} alkenylsulfinyl, C_3 - C_{12} alkenylsulfonyl, C_3 - C_{12} alkynylthio, C_3 - C_{12} alkynylsulfinyl, C_3 - C_{12} alkynylsulfonyl, C_1 - C_4 alkoxycarbonyl- C_1 - C_4 alkylthio, C_1 - C_4 alkoxycarbonyl- C_1 - C_4 alkylsulfinyl, C_1 - C_4 alkoxycarbonyl- C_1 - C_4 alkylsulfonyl, benzyloxy or phenylcarbonylmethoxy; it being possible for the phenyl-containing groups to be substituted by R_7 ;

R₇₁ is halogen, C₁-C₃alkyl, C₁-C₃haloalkyl, hydroxy, C₁-C₃alkoxy, C₁-C₃haloalkoxy, cyano or nitro;

or

Q is a group Q₃



wherein

R₃₁ is C₁-C₆alkyl, C₁-C₆haloalkyl, C₃-C₆cycloalkyl or halo-substituted C₃-C₆cycloalkyl;

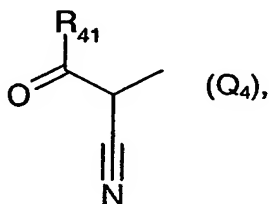
R₃₂ is hydrogen, C₁-C₄alkoxycarbonyl, carboxy or a group S(O)_sR₃₃;

R₃₃ is C₁-C₆alkyl or C₁-C₃alkylene, which may be substituted by halogen, C₁-C₃alkoxy, C₂-C₃alkenyl or by C₂-C₃alkynyl; and

s is 0, 1 or 2;

or

Q is a group Q₄



wherein

R₄₁ is C₁-C₆alkyl, C₁-C₆haloalkyl, C₃-C₆cycloalkyl or halo-substituted C₃-C₆cycloalkyl; and to the agrochemically acceptable salts and to all stereoisomers and tautomers of compounds of formula I.

The alkyl groups appearing in the substituent definitions may be straight-chain or branched and are, for example, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, pentyl, hexyl, heptyl, octyl, nonyl, decyl, undecyl and dodecyl and the branched isomers thereof. Alkoxy, alkenyl and alkynyl radicals are derived from the mentioned alkyl radicals. The alkenyl and alkynyl groups may be mono- or poly-unsaturated, C₂-C₁₂alkyl chains having one or more double or triple bonds also being included. Alkenyl is, for example, vinyl, allyl, isobuten-3-yl, CH₂=CH-CH₂-CH=CH₂-, CH₂=CH-CH₂-CH₂-CH=CH₂- or

$\text{CH}_3\text{-CH=CH-CH}_2\text{-CH=CH-}$. A preferred alkynyl is, for example, propargyl, and $\text{CH}_2\text{=C=CH}_2\text{-}$ is a preferred allenyl.

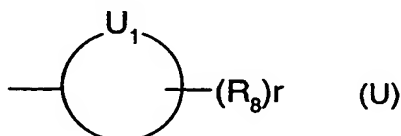
An alkylene chain may be substituted by one or more $\text{C}_1\text{-C}_3$ alkyl groups, especially by methyl groups; such alkylene chains and alkylene groups are preferably unsubstituted. The same applies to all groups containing $\text{C}_3\text{-C}_6$ cycloalkyl, $\text{C}_3\text{-C}_5$ oxacycloalkyl, $\text{C}_3\text{-C}_5$ thiacycloalkyl, $\text{C}_3\text{-C}_4$ dioxacycloalkyl, $\text{C}_3\text{-C}_4$ dithiacycloalkyl or $\text{C}_3\text{-C}_4$ oxaathiacycloalkyl.

An alkylene chain uninterrupted or interrupted by oxygen, S(O)_k , -S(O)_l , -NR_5 - or by carbonyl and especially a $\text{C}_1\text{-C}_4$ alkylene chain L which can be unsubstituted or substituted one or more times (up to five times) by R_5 and/or uninterrupted or interrupted once or twice by -O- , -S(O)_l -, $\text{-N(R}_{5d}\text{)-}$, $\text{-SO}_2\text{N(R}_{5e}\text{)-}$, $\text{-N(R}_{5e}\text{)SO}_2\text{-}$, $\text{-C(O)N(R}_{5f}\text{)-}$ or $\text{-N(R}_{5f}\text{)C(O)-}$, the latter being separated at least by one carbon atom, and W is bonded to L by way of a carbon atom or a $\text{-N(R}_{5e}\text{)SO}_2\text{-}$ or $\text{-N(R}_{5f}\text{)C(O)-}$ bridge when the bridge L is bonded to the nitrogen atom of W; is to be understood as being, for example, a chain $\text{-CH}_2\text{-}$, $\text{-CH}_2\text{CH}_2\text{-}$, $\text{-CH}_2\text{CH}_2\text{CH}_2\text{-}$, $\text{-CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{-}$, $\text{-CH(CH}_3\text{)-}$, $\text{-CH}_2\text{CH(CH}_3\text{)-}$, $\text{-CH}_2\text{CH(CH}_3\text{)CH}_2\text{-}$, $\text{-CH}_2\text{CH(Cl)CH}_2\text{-}$, $\text{-CH}_2\text{CH(OCH}_3\text{)CH}_2\text{-}$, $\text{-CH}_2\text{O-}$, $\text{-OCH}_2\text{-}$, $\text{-CH}_2\text{OCH}_2\text{-}$, $\text{-OCH}_2\text{CH}_2\text{-}$, $\text{-OCH}_2\text{CH}_2\text{CH}_2\text{-}$, $\text{-CH}_2\text{OCH}_2\text{CH}_2\text{-}$, $\text{-CH}_2\text{OCH(CH}_3\text{)CH}_2\text{-}$, $\text{-SCH}_2\text{-}$, $\text{-SCH}_2\text{CH}_2\text{-}$, $\text{-SCH}_2\text{CH}_2\text{CH}_2\text{-}$, $\text{-CH}_2\text{S-}$, $\text{-CH}_2\text{SCH}_2\text{-}$, $\text{-CH}_2\text{S(O)CH}_2\text{-}$, $\text{-CH}_2\text{SO}_2\text{CH}_2\text{-}$, $\text{-CH}_2\text{SCH}_2\text{CH}_2\text{-}$, $\text{-CH}_2\text{S(O)CH}_2\text{CH}_2\text{-}$, $\text{-CH}_2\text{SO}_2\text{CH}_2\text{CH}_2\text{-}$, $\text{-CH}_2\text{SO}_2\text{NH-}$, $\text{-CH}_2\text{N(CH}_3\text{)SO}_2\text{CH}_2\text{CH}_2\text{-}$, $\text{-N(SO}_2\text{Me)CH}_2\text{CH}_2\text{-}$, $\text{-CH}_2\text{C(O)NH-}$ or $\text{-CH}_2\text{NHC(O)CH}_2\text{-}$. The definition $\text{R}_{10}\text{-C}_1\text{-C}_{12}$ alkylene which may be interrupted by oxygen or by $\text{-S(O)}_n\text{-}$ denotes, for example, $\text{CH}_3\text{OCH}_2\text{CH}_2\text{O-}$, phenoxy, phenoxymethyl, benzyloxy, benzylthio or benzyloxymethyl.

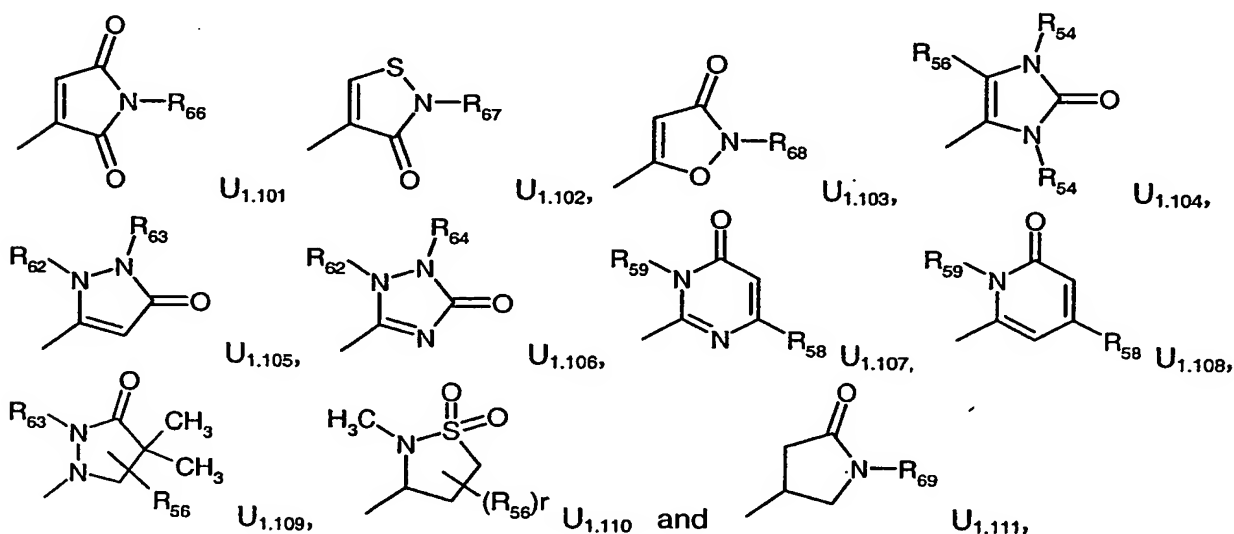
A $\text{C}_2\text{-C}_4$ alkenylene chain which can be uninterrupted or interrupted by oxygen is accordingly to be understood as being, for example, $\text{-CH=CH-CH}_2\text{-}$, $\text{-CH=CH-CH}_2\text{CH}_2\text{-}$ or $\text{-CH=CHCH}_2\text{OCH}_2\text{-}$, and a $\text{C}_2\text{-C}_4$ alkynylene chain which can be uninterrupted or interrupted by oxygen is to be understood as being, for example, $\text{-C}\equiv\text{C-}$, $\text{-C}\equiv\text{CCH}_2\text{-}$, $\text{-C}\equiv\text{CCH}_2\text{O-}$, $\text{-C}\equiv\text{CCH}_2\text{OCH}_2\text{-}$ or $\text{-OC}\equiv\text{CCH}_2\text{-}$.

An alkylene chain which can be mono- or poly-substituted by R_5 in $\text{C}_1\text{-C}_4$ alkylene or by R_{20} in $\text{R}_{10}\text{-C}_1\text{-C}_{12}$ alkylene can be substituted, for example, up to five times. Two such substituents as $\text{C}_1\text{-C}_3$ alkyl can together also form a 3- to 8-membered ring, the groups in question being located at the same carbon atom or at adjacent atoms.

W as a 4- to 7-membered, saturated, partially saturated or unsaturated ring system U

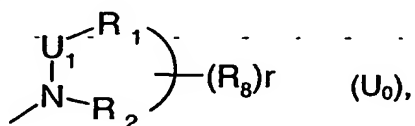


is to be understood as being especially a heterocyclic ring system U which contains a ring element U_1 and which may contain from one to four further ring nitrogen atoms, and/or one or two further ring oxygen atoms, and/or one or two further ring sulfur atoms and/or one or two further ring elements U_2 , and which may be substituted one or more times (e.g. up to six times) at a saturated or unsaturated ring carbon atom and/or at a ring nitrogen atom by a group R_8 , and in which two radicals R_8 together may be a further fused-on or spirocyclic 3- to 7-membered ring system, which may likewise be unsaturated, partially saturated or fully saturated and may itself be substituted by one or more groups R_{8a} ; and wherein U_1 and U_2 are each independently of the other $-C(=O)-$, $-C(=S)-$, $-C(=NR_6)-$, $-(N=O)-$, $-S(=O)-$ or $-SO_2-$. Such ring systems U are, for example,



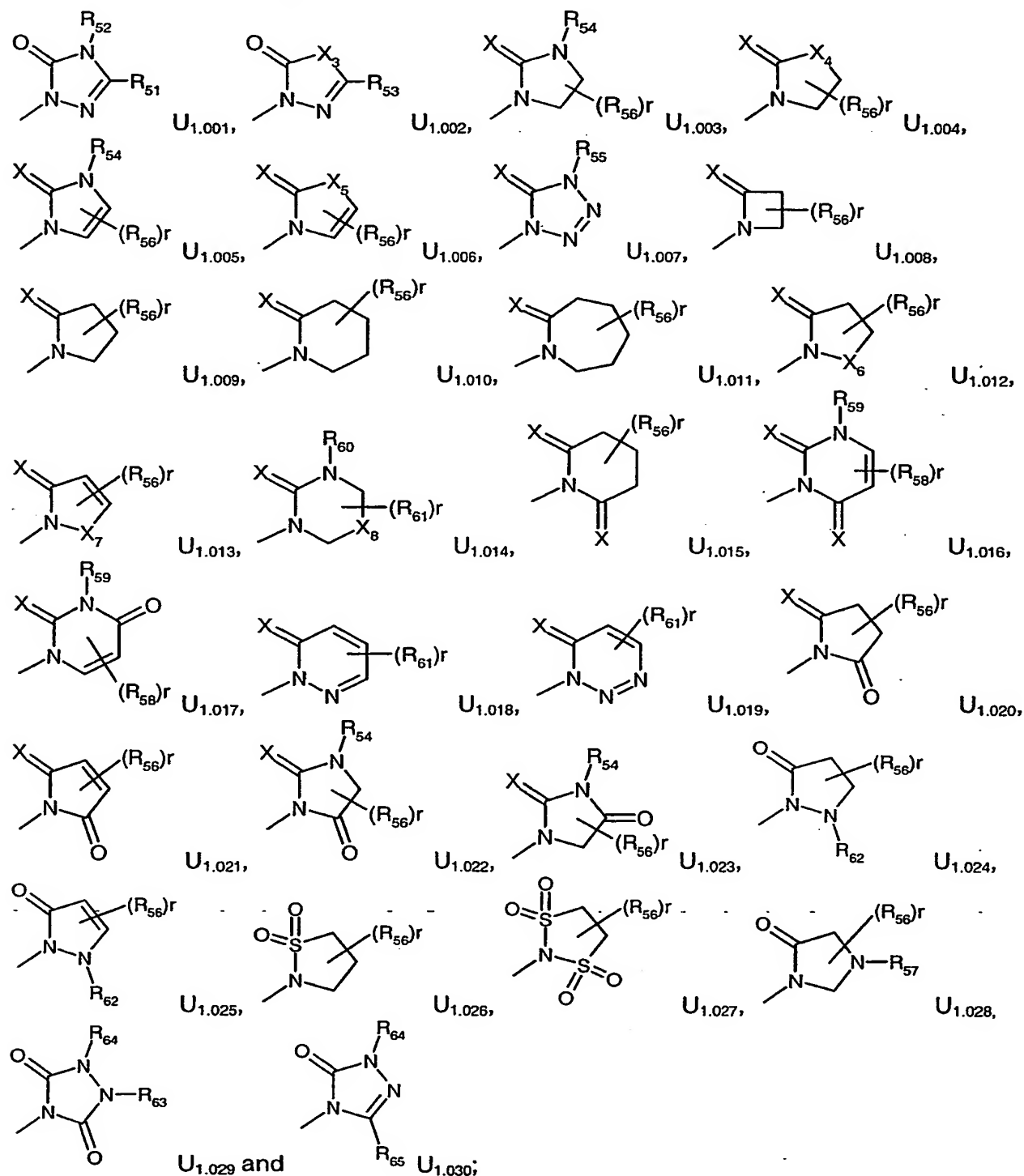
wherein R_{54} , R_{56} , R_{58} , R_{59} , R_{62} , R_{63} , R_{66} , R_{67} , R_{68} and R_{69} as sub-groups of selected substituents R_8 have the definitions and preferred meanings indicated hereinbelow.

Preferably W as a 4- to 7-membered, saturated, partially saturated or unsaturated ring system U is a heterocyclic group U_0



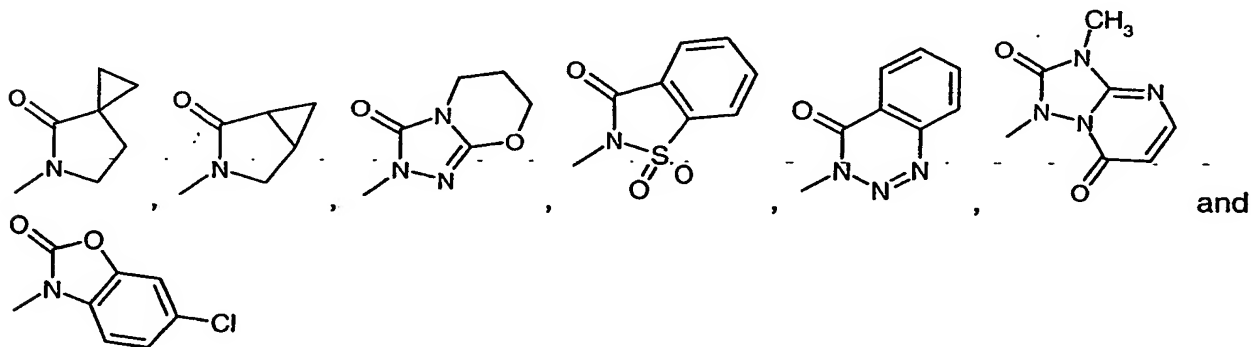
wherein R_1 together with R_2 , by way of the nitrogen atom and the ring element U_1 , forms the corresponding ring system U, which may additionally contain up to 3 nitrogen atoms, a further oxygen atom, a further sulfur atom or a further group U_2 and which may additionally be substituted one or more times (for example up to six times) at a saturated or unsaturated

ring carbon atom and/or at a ring nitrogen atom by a group R_8 , and in which two substituents R_8 together may be a further fused-on or spirocyclic 3- to 7-membered ring system, which may likewise be unsaturated, partially saturated or unsaturated and may itself be substituted by one or more groups R_{8a} . W is especially a heterocycle selected from the groups



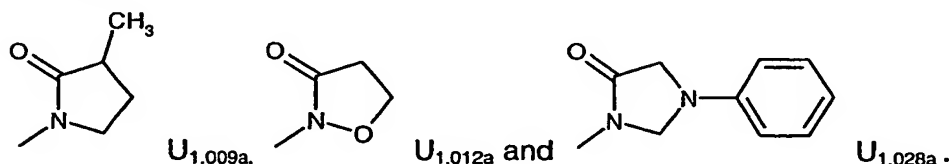
wherein R_{51} , R_{53} , R_{56} , R_{65} are each independently of the others hydrogen, halogen, C_1 - C_6 -alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 cycloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_1 - C_3 alkoxy- C_1 - C_3 alkyl, C_1 - C_6 alkoxy, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_3 - C_6 alkenylthio or C_3 - C_6 alkynylthio; R_{52} is hydrogen, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 cycloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, C_1 - C_6 alkoxy, amino, or phenyl which may in turn be substituted by R_{70} ; R_{54} , R_{55} , R_{60} are hydrogen, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl or C_3 - C_6 cycloalkyl; R_{57} , R_{63} , R_{66} , R_{67} , R_{68} , R_{69} are C_1 - C_6 alkyl, or phenyl which may in turn be substituted by R_{70} ; R_{64} is C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_3 - C_6 cycloalkyl, C_3 - C_6 alkenyl, C_3 - C_6 alkynyl, or phenyl which may in turn be substituted by R_{70} ; R_{58} , R_{61} are hydrogen, halogen, C_1 - C_6 alkyl or C_1 - C_6 haloalkyl; R_{59} is C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_1 - C_3 alkoxy- C_1 - C_3 alkyl, C_3 - C_6 alkenyl or C_3 - C_6 alkynyl; R_{62} is hydrogen, C_1 - C_6 alkyl, C_1 - C_4 alkoxy-carbonyl or C_1 - C_4 alkylthiocarbonyl; or R_{51} together with R_{52} , or R_{54} together with an adjacent group R_{56} , or R_{58} together with an adjacent group R_{59} , or R_{60} together with an adjacent group R_{61} , or, when r is 2, two adjacent groups R_{56} or two adjacent groups R_{61} together may form a saturated or unsaturated C_1 - C_5 alkylene or C_3 - C_4 alkenylene bridge which may in turn be substituted by a group R_{70} or interrupted by oxygen, sulfur or nitrogen; each R_{70} independently is halogen, C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, hydroxy, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, cyano or nitro; X is oxygen, sulfur or NR_6 ; X_3 , X_4 and X_5 are oxygen or sulfur; X_6 and X_7 are oxygen or S, $S(O)$, SO_2 ; and X_8 is CH_2 , oxygen, S, $S(O)$, SO_2 or NR_{71} , wherein R_{71} is hydrogen or C_1 - C_6 alkyl.

Two substituents R_8 as hydroxy may be a further carbonyl group when they are located at the same carbon atom, and two substituents R_8 that together form a further 3- to 7-membered ring system can be located at the same carbon atom to form a spiro ring or at two adjacent carbon and/or nitrogen atoms to form a fused ring system, such as, for example, in the case of the groups:



The provisos that U_1 as either $-C(=O)-$ or $-C(=S)-$ or $-C(=NR_{5d})-$ does not form a tautomeric form with a substituent R_8 as hydrogen are to be understood as meaning especially that an

enol form is not formed under physiological conditions in a pH range of from about 2 to about 11. Accordingly, the present invention likewise relates, for example, to compounds of formulae



Halogen is generally fluorine, chlorine, bromine or iodine, preferably fluorine or chlorine. The same is true of halogen in conjunction with other meanings, such as haloalkyl, haloalkoxy or halophenyl.

Haloalkyl groups having a chain length of from 1 to 6 carbon atoms are, for example, fluoromethyl, difluoromethyl, trifluoromethyl, chloromethyl, dichloromethyl, trichloromethyl, 2,2,2-trifluoroethyl, 1-fluoroethyl, 2-fluoroethyl, 2-chloroethyl, 2-fluoroprop-2-yl, pentafluoroethyl, 1,1-difluoro-2,2,2-trichloroethyl, 2,2,3,3-tetrafluoroethyl and 2,2,2-trichloroethyl, pentafluoroethyl, heptafluoro-n-propyl, perfluoro-n-hexyl. Preferred haloalkyl groups in the definitions R to R_x, and particularly the group R₃, are fluoromethyl, difluoromethyl, difluorochloromethyl, trifluoromethyl and pentafluoroethyl.

As haloalkenyl there come into consideration alkenyl groups mono- or poly-substituted by halogen, halogen being fluorine, chlorine, bromine or iodine, and especially fluorine or chlorine, for example 1-chlorovinyl, 2-chlorovinyl, 2,2-difluoro-vinyl, 2,2-difluoro-prop-1-en-2-yl, 2,2-dichloro-vinyl, 3-fluoroprop-1-en-1-yl, chloroprop-1-en-1-yl, 3-bromoprop-1-en-1-yl, 3-iodoprop-1-en-1-yl, 2,3,3-trifluoroprop-2-en-1-yl, 2,3,3-trichloroprop-2-en-1-yl and 4,4,4-trifluoro-but-2-en-1-yl.

As haloalkynyl there come into consideration, for example, alkynyl groups mono- or poly-substituted by halogen, halogen being bromine, iodine and especially fluorine or chlorine, for example 3-fluoropropynyl, 3-chloropropynyl, 3-bromopropynyl, 3,3,3-trifluoropropynyl and 4,4,4-trifluoro-but-2-yn-1-yl.

A C₃-C₆cycloalkyl group may likewise be mono- or poly-substituted by halogen, for example 2,2-dichlorocyclopropyl, 2,2-dibromocyclopropyl, 2,2,3,3-tetrafluorocyclobutyl or 2,2-difluoro-3,3-dichlorocyclobutyl.

Alkoxy groups preferably have a chain length of from 1 to 6 carbon atoms. Alkoxy is, for example, methoxy, ethoxy, propoxy, isopropoxy, n-butoxy, isobutoxy, sec-butoxy or tert-butoxy or a pentyloxy or hexyloxy isomer; preferably methoxy or ethoxy.

Haloalkoxy groups preferably have a chain length of from 1 to 6 carbon atoms, e.g. fluoro-methoxy, difluoromethoxy, trifluoromethoxy, 2,2,2-trifluoroethoxy, 1,1,2,2-tetrafluoroethoxy, 1-fluoroethoxy, 2-fluoroethoxy, 2-chloroethoxy, 2,2-difluoroethoxy and 2,2,2-trichloroethoxy; preferably fluoromethoxy, difluoromethoxy, 2-chloroethoxy and trifluoromethoxy.

Alkylthio groups preferably have a chain length of from 1 to 8 carbon atoms.

Alkylthio is, for example, methylthio, ethylthio, propylthio, isopropylthio, n-butylthio, isobutylthio, sec-butylthio or tert-butylthio, preferably methylthio or ethylthio. Alkylsulfinyl is, for example, methylsulfinyl, ethylsulfinyl, propylsulfinyl, isopropylsulfinyl, n-butylsulfinyl, isobutylsulfinyl, sec-butylsulfinyl, tert-butylsulfinyl; preferably methylsulfinyl or ethylsulfinyl.

Alkylsulfonyl is, for example, methylsulfonyl, ethylsulfonyl, propylsulfonyl, isopropylsulfonyl, n-butylsulfonyl, isobutylsulfonyl, sec-butylsulfonyl or tert-butylsulfonyl; preferably methylsulfonyl or ethylsulfonyl.

Alkylamino is, for example, methylamino, ethylamino, n-propylamino, isopropylamino or a butylamine isomer. Dialkylamino is, for example, dimethylamino, methylethylamino, diethylamino, n-propylmethylamino, dibutylamino or diisopropylamino. Alkylamino groups having a chain length of from 1 to 4 carbon atoms are preferred.

Alkoxyalkyl groups preferably have from 2 to 6 carbon atoms. Alkoxyalkyl is, for example, methoxymethyl, methoxyethyl, ethoxymethyl, ethoxyethyl, n-propoxymethyl, n-propoxyethyl, isopropoxymethyl or isopropoxyethyl. Alkoxy-alkoxyalkyl groups preferably have from 3 to 8 carbon atoms, e.g. methoxymethoxymethyl, methoxyethoxymethyl, ethoxymethoxymethyl, ethoxyethoxymethyl. Di(C₁-C₄alkoxy)-C₁-C₄alkyl is to be understood as being, for example, dimethoxymethyl or diethoxymethyl.

Alkylthioalkyl groups preferably have from 2 to 6 carbon atoms. Alkylthioalkyl is, for example, methylthiomethyl, methylthioethyl, ethylthiomethyl, ethylthioethyl, n-propylthiomethyl, n-propylthioethyl, isopropylthiomethyl, isopropylthioethyl, butylthiomethyl, butylthioethyl or butylthiobutyl.

Alkylcarbonyl is preferably acetyl or propionyl. Alkoxy-carbonyl is, for example, methoxycarbonyl, ethoxycarbonyl, propoxycarbonyl, isopropoxycarbonyl, n-butoxycarbonyl, isobutoxycarbonyl, sec-butoxycarbonyl or tert-butoxycarbonyl; preferably methoxycarbonyl, ethoxycarbonyl or tert-butoxycarbonyl.

Phenyl, including as part of a substituent such as phenoxy, benzyl, benzyloxy, benzoyl, phenylthio, phenylalkyl, phenoxyalkyl or tosyl, can be in mono- or poly-substituted form. The

substituents can in that case be as desired, preferably with a substituent having a meaning of R₇ in the ortho-, meta- and/or para-position.

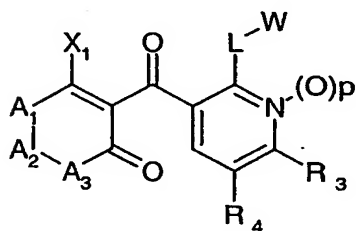
Heteroaryl is to be understood as being a 5- or 6-membered group containing both nitrogen and oxygen and/or sulfur, for example furyl, thienyl, pyrrolyl, pyrazolyl, imidazolyl, triazolyl, oxazolyl, thiazolyl, pyridyl, pyrimidinyl, triazinyl, pyrrolyl, pyrazolyl, triazolyl, tetrazolyl, oxadiazolyl, thiadiazolyl, 4,5-dihydro-isoxazole, 2-pyranyl, 1,3-dioxol-2-yl, oxiranyl, 3-oxetanyl, tetrahydrofuranyl, tetrahydropyranyl or one of the groups U₁ defined above.

Heterocyclyl is to be understood as being a ring system containing, in addition to carbon atoms, at least one hetero atom, such as nitrogen, oxygen and/or sulfur. It can be saturated or unsaturated. Heterocyclyl ring systems in the context of the present invention can also be substituted. Suitable substituents are, for example, C₁-C₄alkyl, C₁-C₄haloalkyl, C₁-C₄alkoxy, cyano, nitro, C₁-C₄alkylsulfonyl, C₁-C₄alkylsulfinyl, C₁-C₄alkylthio and C₃-C₆cycloalkyl.

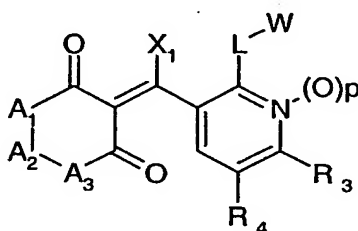
The present invention relates also to the salts which the compounds of formula I and especially the compounds of formula Ia are able to form with amines, alkali metal and alkaline earth metal bases or quaternary ammonium bases. Among the alkali metal and alkaline earth metal bases as salt formers, special mention should be made of the hydroxides of lithium, sodium, potassium, magnesium and calcium, but especially the hydroxides of sodium and potassium. Examples of amines suitable for ammonium salt formation include ammonia as well as primary, secondary and tertiary C₁-C₁₈alkylamines, C₁-C₄hydroxyalkylamines and C₂-C₄alkoxyalkylamines, for example methylamine, ethylamine, n-propylamine, isopropylamine, the four butylamine isomers, n-amylamine, isoamylamine, hexylamine, heptylamine, octylamine, nonylamine, decylamine, pentadecylamine, hexadecylamine, heptadecylamine, octadecylamine, methylethylamine, methylisopropylamine, methylhexylamine, methylnonylamine, methylpentadecylamine, methyloctadecylamine, ethylbutylamine, ethylheptylamine, ethyloctylamine, hexylheptylamine, hexyloctylamine, dimethylamine, diethylamine, di-n-propylamine, diisopropylamine, di-n-butylamine, di-n-amylamine, diisoamylamine, dihexylamine, diheptylamine, dioctylamine, ethanolamine, n-propanolamine, isopropanolamine, N,N-diethanolamine, N-ethylpropanolamine, N-butylethanolamine, allylamine, n-butenyl-2-amine, n-pentenyl-2-amine, 2,3-dimethylbutenyl-2-amine, dibutenyl-2-amine, n-hexenyl-2-amine, propylenediamine, trimethylamine, triethylamine, tri-n-propylamine, triisopropylamine, tri-n-butylamine, triisobutylamine, tri-sec-butylamine, tri-n-amylamine, methoxyethylamine and ethoxyethylamine; heterocyclic amines, for example pyridine, quinoline, isoquinoline, morpholine, piperidine, pyrrolidine, indoline, quinuclidine and azepine; primary arylamines, for example anilines, methoxyanilines, ethoxyanilines, o-, m- and p-toluidines, phenylenediamines, naphthylamines and o-, m- and p-chloroanilines; but

especially triethylamine, isopropylamine and diisopropylamine. Quaternary ammonium bases suitable for salt formation are, for example, $[N(R_a R_b R_c R_d)]^+ OH^-$ wherein R_a , R_b , R_c and R_d are each independently of the others C_1 - C_4 alkyl. Further suitable tetraalkylammonium bases with other anions can be obtained, for example, by anion exchange reactions. M^+ is preferably an ammonium salt, especially NH_4^+ , or an alkali metal, especially potassium or sodium.

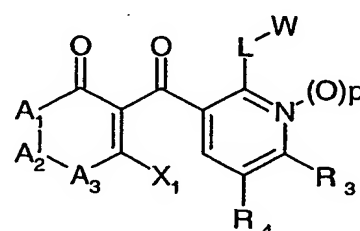
Depending upon the preparation process, the compounds of formula I may be obtained in various tautomeric forms, such as, for example, in Form A shown below or in Form B or in Form C, preference being given to Form A, as shown by way of example for compounds of formula IA wherein Q is a group Q_1 and the group $-L-W$ is in the 2-position.



IA, Form A

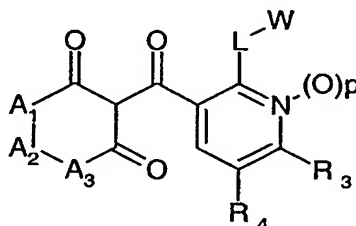


IA, Form B



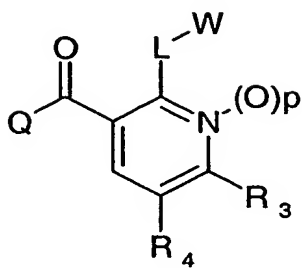
IA, Form C

When X_1 is hydroxy, the structure of formula I can also be represented by the tautomeric Form D

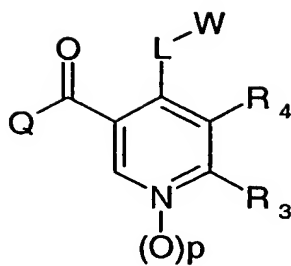
IA, Form D (X_1 =hydroxy)

as shown likewise by way of the example of compounds of formula IA wherein Q is a group Q_1 and the group $-L-W$ is in the 2-position. Compounds of formula I wherein Q is a group Q_2 or a group Q_4 can accordingly be present in the tautomeric forms A, B, C or D. When a $C=N$ or $C=C$ double bond is present in compounds of formula I, the compounds of formula I, when asymmetric, may be in the E form or the Z form. When a further asymmetric centre is present, for example an asymmetric carbon atom, chiral R or S forms may occur. The present invention therefore relates also to all such stereoisomeric and tautomeric forms of the compound of formula I.

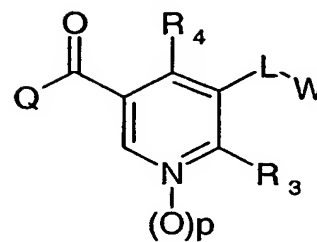
Of the compounds of formula I, the formulae IA, IB, IC, ID, IE, IF, IG and IH are preferred.



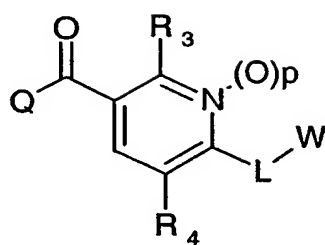
IA



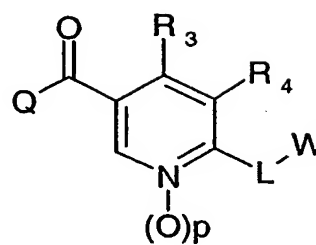
IB



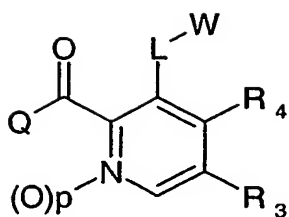
IC



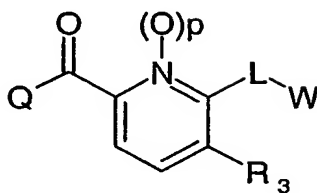
ID



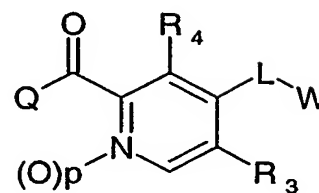
IE



IF



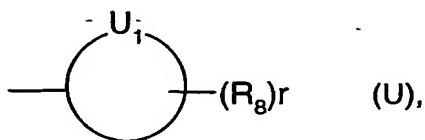
IG



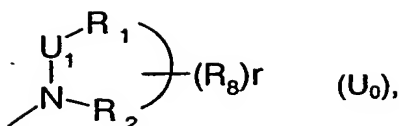
IH

Special preference is given to the compounds of formula IA.

Of the compounds of formula I, special preference is given to those wherein W, as a 4- to 7-membered, saturated, partially saturated or unsaturated ring system U



is a group bonded to L by way of the nitrogen atom adjacent to the ring element U_i and is accordingly a cyclic group U_i mono- or poly-substituted by R_g



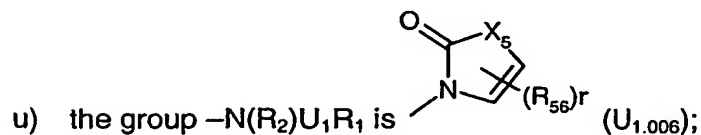
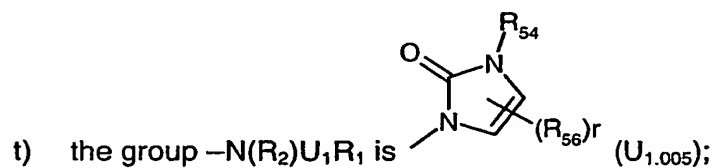
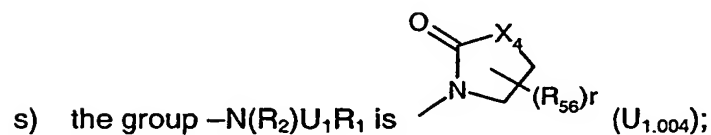
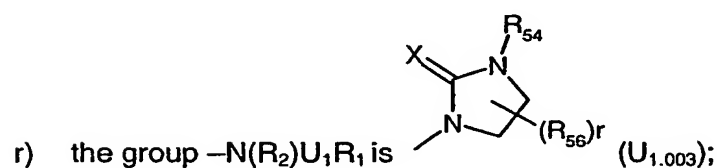
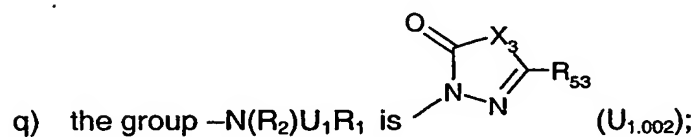
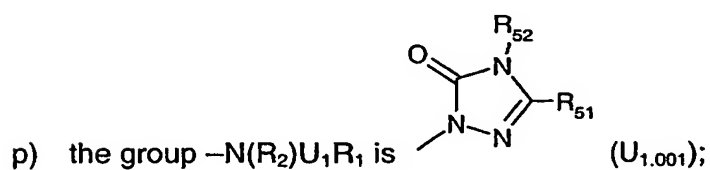
wherein R_1 together with R_2 , by way of the nitrogen atom and the group U_1 , forms the corresponding ring system U and wherein U_1 , R_8 and r are as defined above.

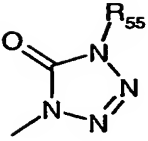
Of the compounds of formula I and especially of the compounds of formula IA, special preference is given in turn to those groups wherein:

- a) Q is a group Q_1 , A_1 is $\text{CR}_{11}\text{R}_{12}$ and R_{11} is hydrogen, methyl, ethyl, propargyl, methoxycarbonyl, ethoxycarbonyl, methylthio, methylsulfinyl or methylsulfonyl and R_{12} is hydrogen or methyl, or R_{11} together with R_{12} forms an ethylene bridge $-(\text{CH}_2)_2-$;
- b) Q is a group Q_1 and A_2 is $\text{CR}_{14}\text{R}_{15}$ or an ethylene bridge $-(\text{CH}_2)_2-$, and R_{14} is hydrogen, methyl or trifluoromethyl and R_{15} is hydrogen or methyl, or R_{14} together with R_{11} , or R_{14} together with R_{17} forms a direct bond or a methylene bridge;
- c) Q is a group Q_1 and A_2 is $\text{C}(\text{O})$ and R_{11} , R_{12} , R_{17} and R_{18} are each methyl;
- d) Q is a group Q_1 and A_2 is oxygen and R_{11} , R_{12} , R_{17} and R_{18} are each hydrogen or methyl;
- e) Q is a group Q_1 and A_3 is $\text{CR}_{17}\text{R}_{18}$ and R_{17} and R_{18} are hydrogen or methyl, or R_{17} together with R_{11} forms a methylene or ethylene bridge;
- f) Q is a group Q_1 and X_1 is hydroxy;
- g) Q is a group Q_2 and R_{21} is methyl or ethyl and R_{22} is hydrogen or methyl;
- h) Q is a group Q_2 and X_2 is hydroxy;
- i) Q is a group Q_3 or Q_4 and R_{32} is hydrogen, methylthio or methylsulfinyl, and R_{31} and R_{41} are cyclopropyl;
- j) p is 0;
- k) R_4 is hydrogen, methyl, chlorine or trifluoromethyl, especially hydrogen;
- l) R_3 is C_1 - C_3 haloalkyl, especially difluoromethyl, chlorodifluoromethyl or trifluoromethyl;
- m) L is either a direct bond or an unsubstituted C_1 - C_3 alkylene group or a C_1 - C_3 alkylene group uninterrupted or interrupted by oxygen, such as especially a methylene group $-\text{CH}_2-$ or an ethylenemethoxymethylene group $-\text{CH}_2\text{OCH}_2\text{CH}_2-$;
- n) R_1 and R_2 in the group $-\text{N}(\text{R}_2)\text{U}_1\text{R}_1$ form a 4- to 6-membered, saturated or partially saturated ring system which may additionally be substituted from one to three times by

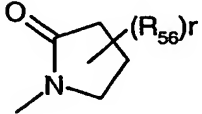
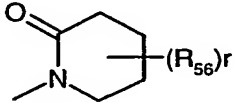
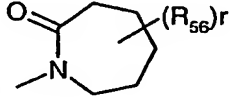
-N(R_{8b})-, once by oxygen, once by sulfur, sulfinyl or sulfonyl and/or once by a further carbonyl group;

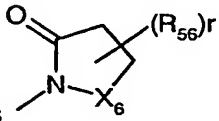
o) . U₁ is preferably a -C(=O)- group, a -C(=S)- group, a -C(=NR₆)- group or a -SO₂- group;

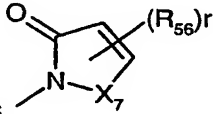


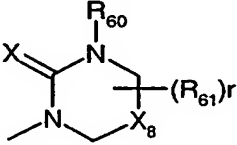
v) the group $-N(R_2)U_1R_1$ is  (U_{1.007});

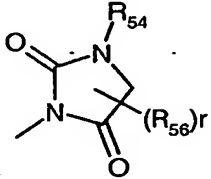
w) the group $-N(R_2)U_1R_1$ is a group selected from  (U_{1.008}),

 (U_{1.009}),  (U_{1.010}) and  (U_{1.011});

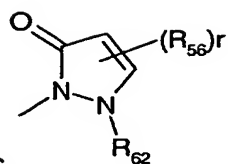
x) the group $-N(R_2)U_1R_1$ is  (U_{1.012}), wherein X₆ is oxygen or sulfur;

y) the group $-N(R_2)U_1R_1$ is  (U_{1.013}), wherein X₇ is oxygen or sulfur;

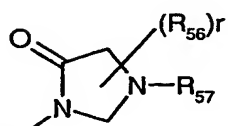
z) the group $-N(R_2)U_1R_1$ is  (U_{1.014}), wherein X is oxygen or sulfur and X₈ is $-CH_2-$;

aa) the group $-N(R_2)U_1R_1$ is  (U_{1.022});

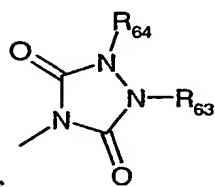
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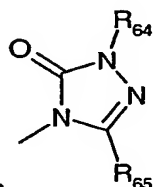
bb) the group $-N(R_2)U_1R_1$ is (U_{1.025});



cc) the group $-N(R_2)U_1R_1$ is (U_{1.028});

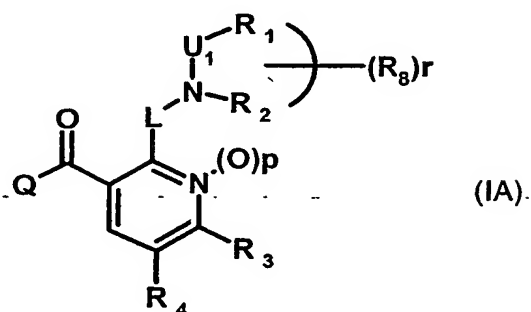


dd) the group $-N(R_2)U_1R_1$ is (U_{1.029}); or



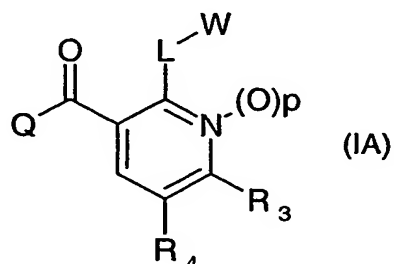
ee) the group $-N(R_2)U_1R_1$ is (U_{1.030}).

Special preference is given to the compounds of formula IA

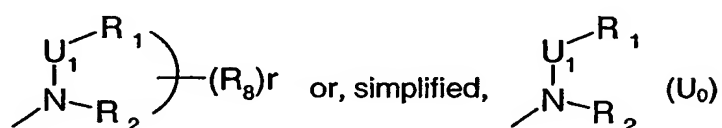


wherein Q, L, U₁, R₁, R₂, R₈ and r are as defined above and R₃ is difluoromethyl, chlorodifluoromethyl or trifluoromethyl, R₄ is hydrogen and p is 0.

The compounds of formula I can be prepared by means of processes known *per se*, as described below using the example of compounds of formula IA

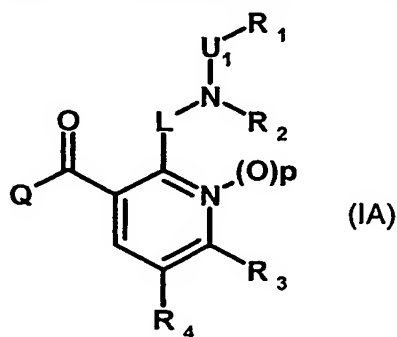


wherein W is a heterocyclic group U_0



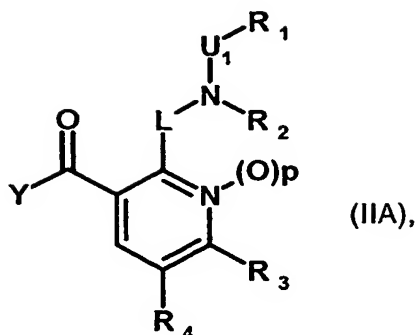
and wherein the group $-L-N(R_2)U_1R_1$ is located in the 2-position of the nicotinoyl group.

In a preferred process, for example for the preparation of a compound of formula IA

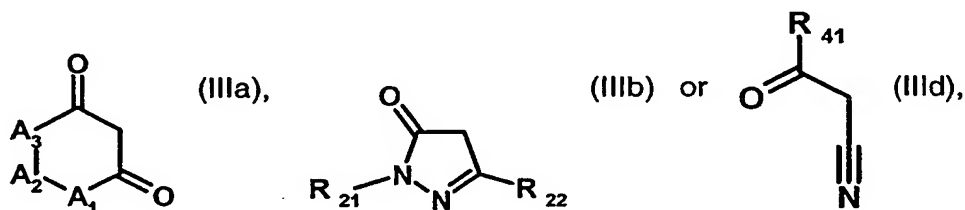


wherein L, U_1 , R_1 , R_2 , R_3 , R_4 and p are as defined above and Q is a group Q_1 , Q_2 or Q_4 ,
a compound of formula IIA

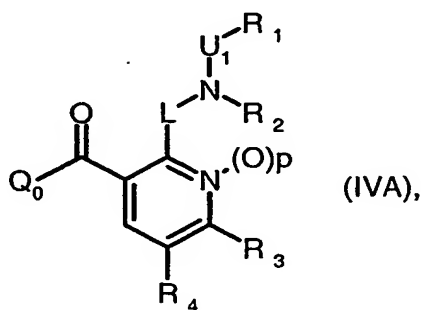
- 21 -



wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and Y is chlorine or cyano, is reacted in the presence of a base with a keto compound of formula IIIa, IIIb or IIId



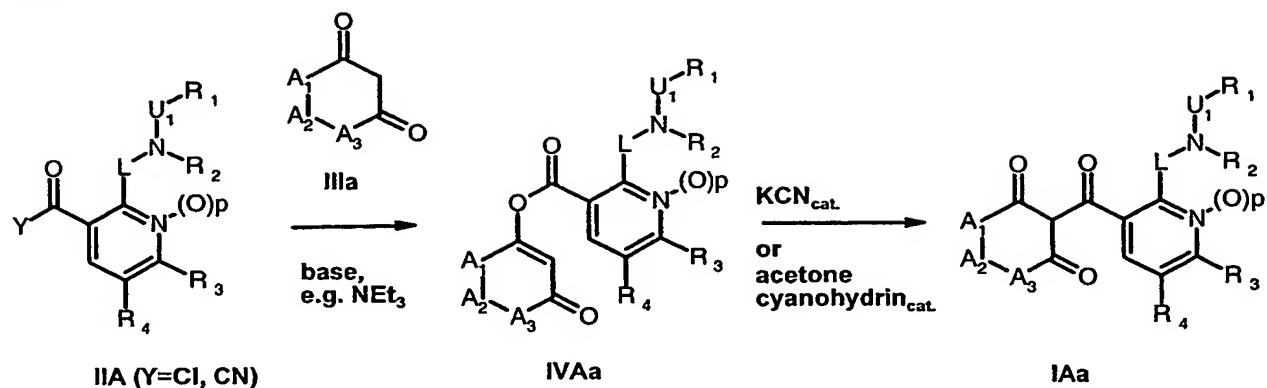
wherein A₁, A₂, A₃, R₂₁, R₂₂ and R₄₁ are as defined above, thus yielding the compound of formula IA directly *in situ* or yielding a compound of formula IVA



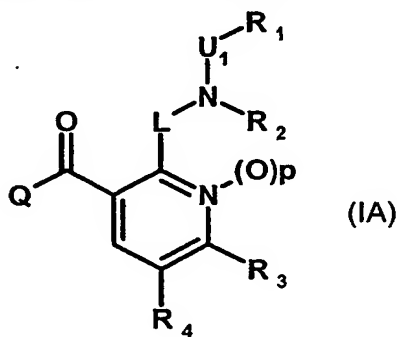
wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and Q₀ is accordingly the group Q linked to oxygen, which compound, especially when Y is chlorine, is then rearranged in the presence of an additional amount of cyanide ions, e.g. potassium cyanide, trimethylsilyl cyanide or acetone cyanohydrin, and in the presence of a base, e.g. triethylamine, to form a C-C-linked compound IA.

That process is illustrated by way of example with respect to compounds of formula IA wherein Q is a group Q₁, that is to say with respect to compounds of formula IAa, in Scheme 1.

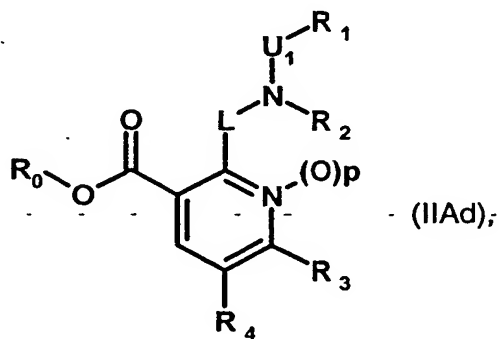
Scheme 1:



In a variant of that process, for example for the preparation of a compound of formula IA

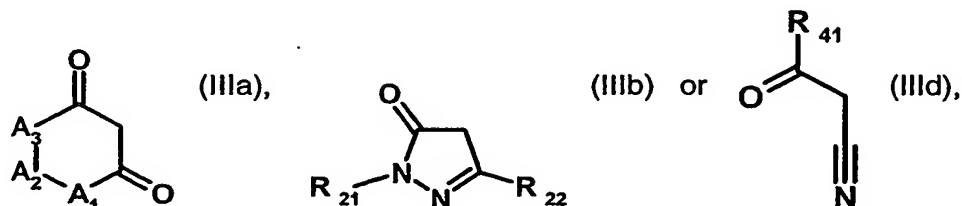


wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and Q is a group Q₁, Q₂ or Q₄, a compound of formula IIAd

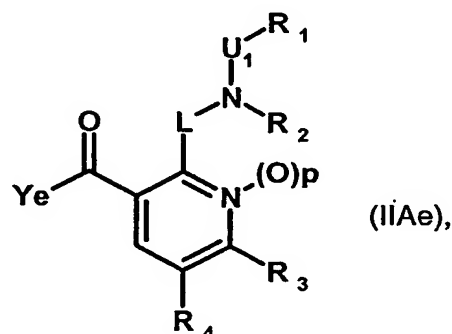


wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and R₀ is hydroxy, is reacted with the aid of a coupling reagent, for example dicyclohexylcarbodiimide, (1-chloro-2-methylpropenyl)-dimethylamine or 2-chloro-1-methylpyridinium iodide, in the presence of a base,

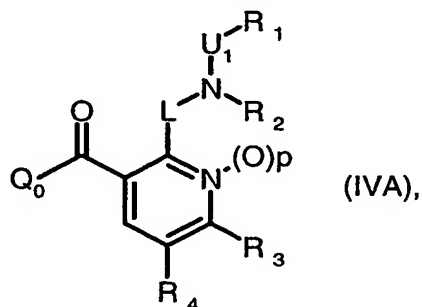
e.g. triethylamine or Hünig base, with a keto compound of formula IIIa, IIIb or IIIc, respectively,



wherein A_1 , A_2 , A_3 , R_{21} , R_{22} and R_{41} are as defined above, optionally *via* an intermediate of an activated ester of formula IIa



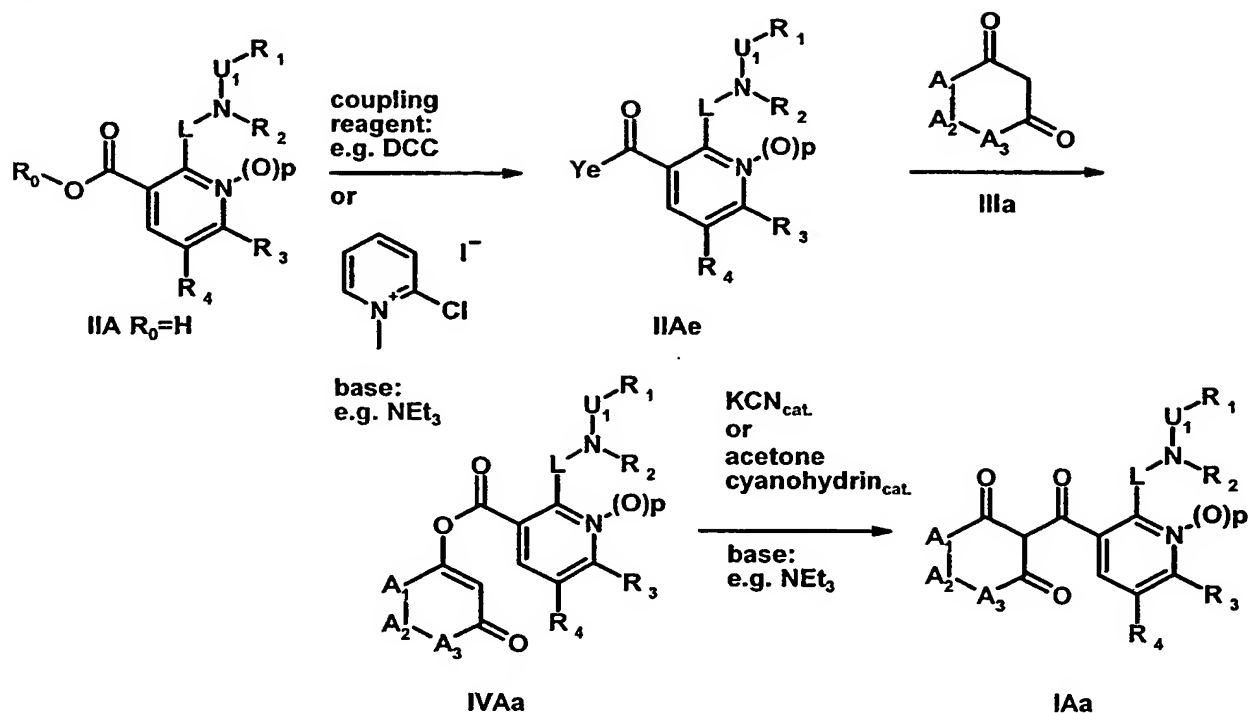
wherein L , U_1 , R_1 , R_2 , R_3 , R_4 and p are as defined above and the meaning of Ye depends upon the coupling reagent used, to form a compound of formula IVA



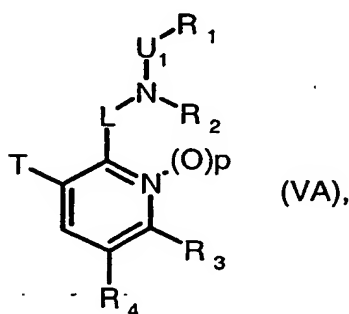
wherein L , U_1 , R_1 , R_2 , R_3 , R_4 and p are as defined above and Q_0 is accordingly the group Q linked to oxygen, and that compound is then, after isolation in a second reaction step or directly *in situ*, rearranged in the presence of a base, e.g. triethylamine, and a catalytic amount of cyanide ions, e.g. potassium cyanide or acetone cyanohydrin, or a catalytic amount of dimethylaminopyridine, to form a C-C-linked compound IA.

That process is illustrated by way of example with respect to compounds of formula IA wherein Q is a group Q_1 , that is to say with respect to compounds of formula IAa, in Scheme 2.

Scheme 2:

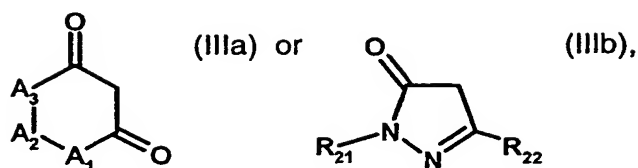


In a further process for the preparation of compounds of formula IA, a compound of formula VA



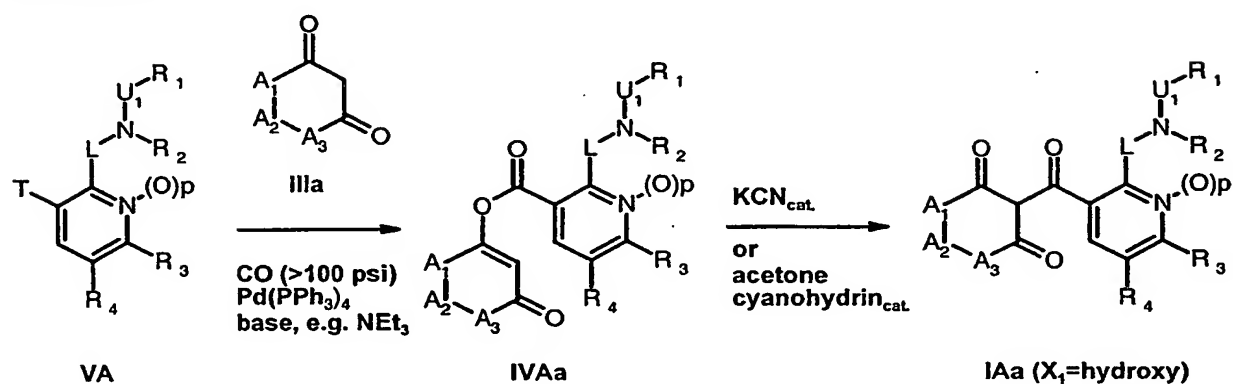
wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and T is chlorine, bromine, iodine or trifluoromethanesulfonyloxy, is reacted under carbonylation conditions, as described, for example, in Tetrahedron Letters, 31, 2841, 1990 and in WO 02/16305, in the presence of noble metal catalysts and suitable phosphine ligands, e.g. Pd(PPh₃)₄ or Pd(PPh₃)₂Cl₂, and suitable bases, e.g. triethylamine, with a compound of formula III, for example of formula IIIa or IIIb

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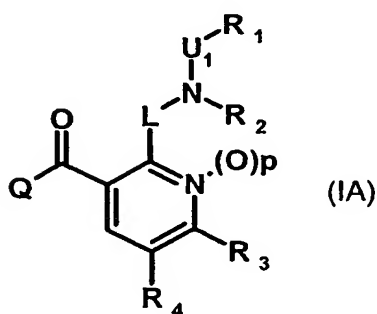


wherein A_1 , A_2 , A_3 , R_{21} and R_{22} are as defined above, as illustrated in Scheme 3 for compounds of formula IAa wherein X_1 is hydroxy.

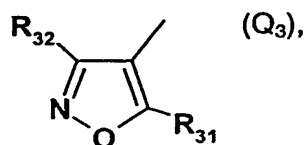
Scheme 3:



Compounds of formula IA

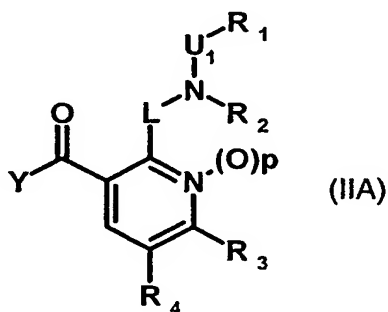


wherein L , U_1 , R_1 , R_2 , R_3 , R_4 and p are as defined above and Q is a group Q_3



that is to say compounds of formula IAc, can likewise be prepared analogously to known procedures (for example analogously to the procedures described in WO 00/15615,

WO 00/39094 and WO 01/94339), for example as follows: when X_3 is oxygen and R_{32} is a group $S(O)_nR_{33}$ wherein R_{33} is as defined above, a compound of formula IIA



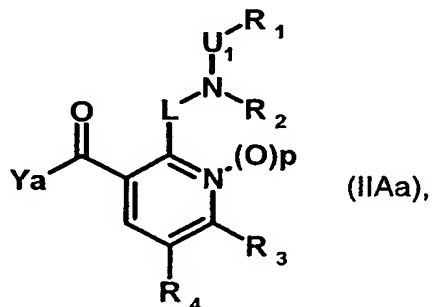
wherein L, U_1 , R_1 , R_2 , R_3 , R_4 and p are as defined above and Y is chlorine is converted in a Claisen condensation with a ketocarboxylic acid salt of formula XIV



or with a trialkyl silyl ester of formula XIVa



wherein R_{31} is as defined above and M^+ is a metal salt cation, e.g. Li^+ or K^+ , and R' , R'' , R''' are an alkyl group, e.g. methyl, into a compound of formula IIAa

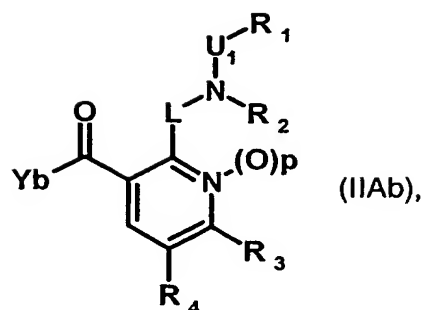


wherein L, U_1 , R_1 , R_2 , R_3 , R_4 and p are as defined above and Ya is $CH_2C(O)R_{31}$, that compound is then treated in the presence of a base with carbon disulfide and an alkylating reagent of formula XV

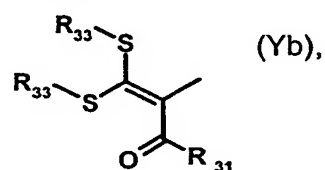


wherein R_{33} is as defined for formula I and Y_2 is a leaving group, such as halogen or sulfonyloxy, and converted into a compound of formula IIAb

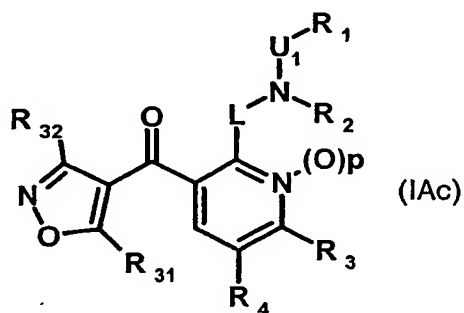
- 27 -



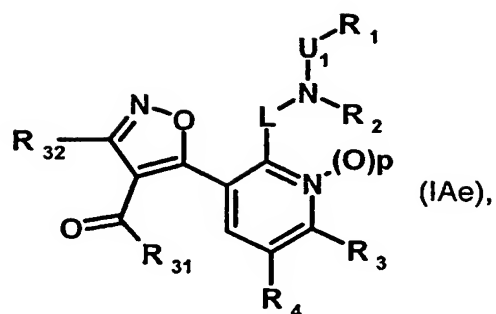
wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and Yb is a group Yb



and then the compound of formula IIAb is cyclised with hydroxylamine hydrochloride and optionally in a solvent and in the presence of a base, for example sodium acetate, to form isomeric compounds of formula IAc and/or IAe, and the latter are then, when n is 1 or 2, oxidised with an oxidising agent, e.g. with a peracid, such as meta-chloroperbenzoic acid (m-CPBA) or peracetic acid, to form corresponding sulfoxides (n = 1) or sulfones (n = 2) of formula IAc

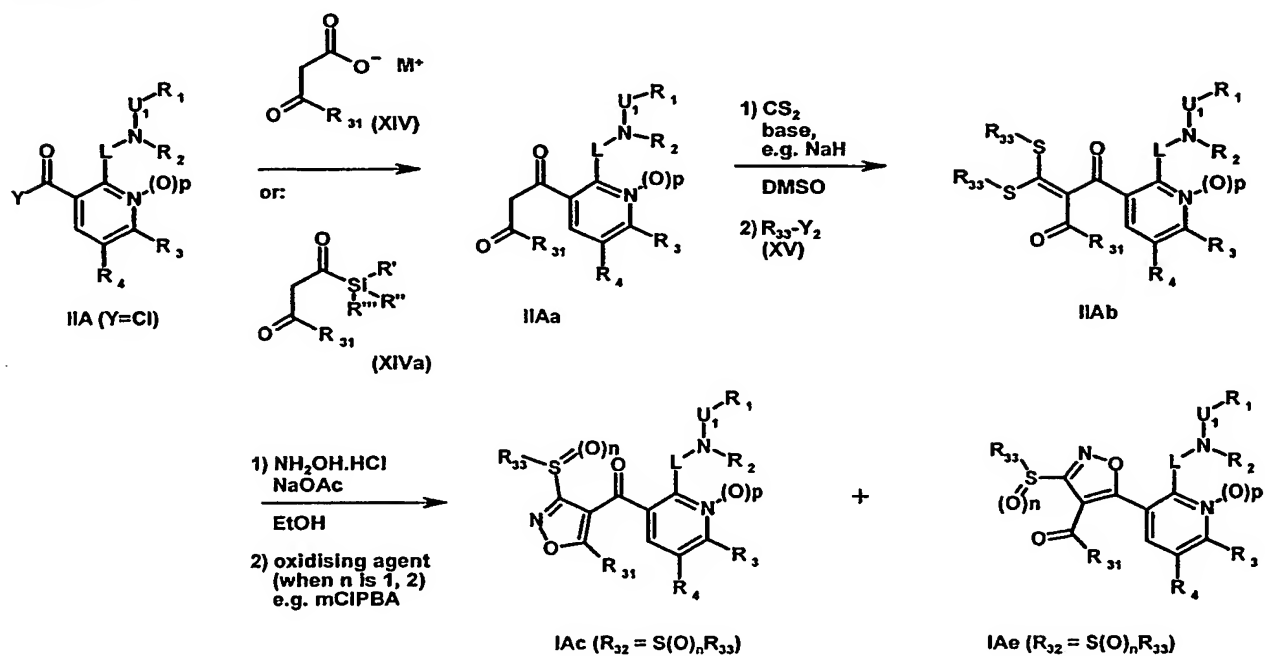


and IAe

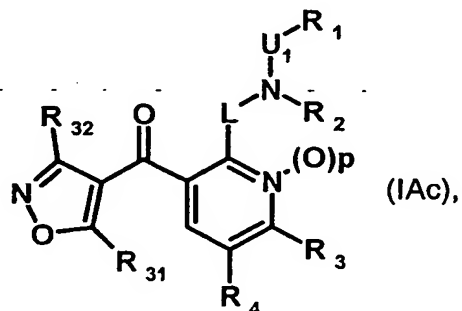


wherein L, U₁, R₁, R₂, R₃, R₄, R₃₁ and p are as defined above and R₃₂ is a group S(O)_nR₃₃. That process is illustrated in Scheme 4.

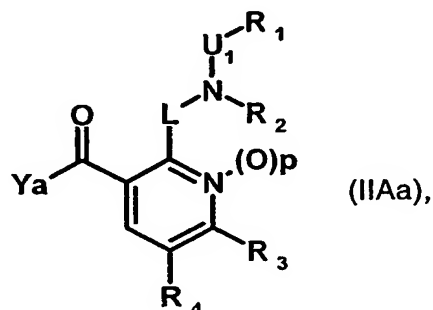
Scheme 4:



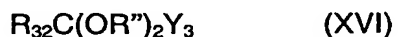
Compounds of formula IAc



wherein L, U₁, R₁, R₂, R₃, R₄, R₃₁ and p are as defined above and R₃₂ is hydrogen, C₁-C₄-alkoxycarbonyl or carboxy, can likewise be prepared analogously to known procedures (e.g. analogously to the procedures described in WO 97/46530), for example as follows:
a compound of formula II Aa



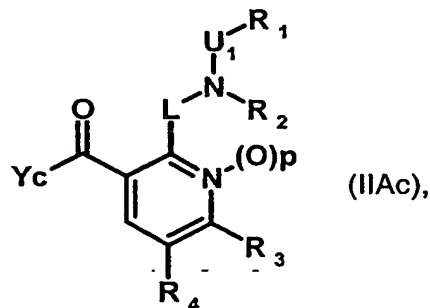
wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and Ya is CH₂C(O)R₃₁, is converted in the presence of a base with an ortho ester of formula XVI



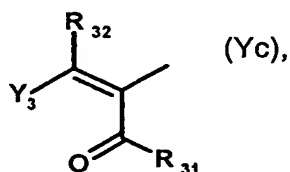
or with a cyanic acid ester of formula XVII



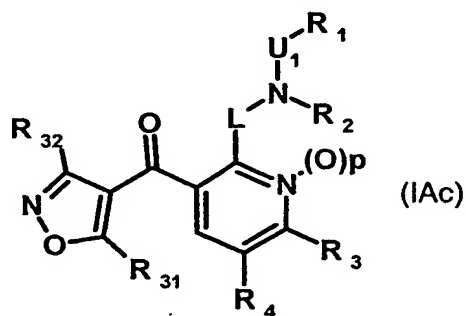
wherein R₃₂ is hydrogen, Y₃ is a leaving group, such as C₁-C₄alkoxy or di(C₁-C₄alkyl)amino, and R'' and R''' are C₁-C₄alkoxy, into a compound of formula II Ac



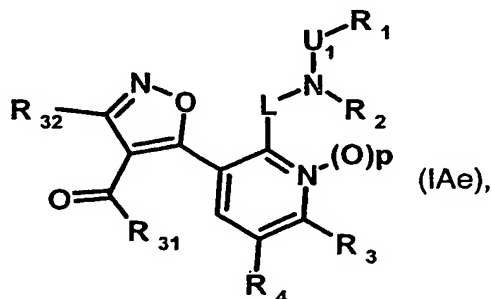
wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and Yc is a group Yc



wherein R_{31} is as defined above and R_{32} is hydrogen or C_1 - C_4 alkoxycarbonyl and Y_3 is a leaving group, such as C_1 - C_4 alkoxy or di(C_1 - C_4 alkyl)amino, or hydroxy, and then the compound of formula IIaC is cyclised with hydroxylamine hydrochloride and optionally in a solvent and in the presence of a base, for example sodium acetate, to form isomeric compounds of formula IAc and/or IAe, and the latter are then, when R_{32} is carboxyl or hydrogen, treated with a hydrolysing agent, e.g. with potassium hydroxide followed by a mineral acid, such as hydrochloric acid, to yield compounds of formula IAc

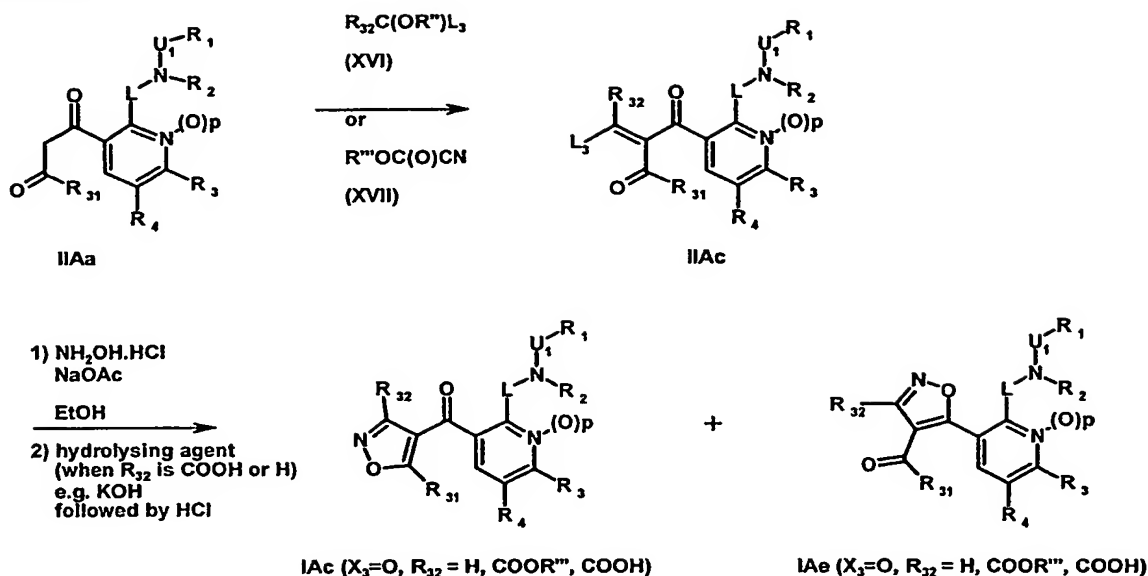


and/or IAe



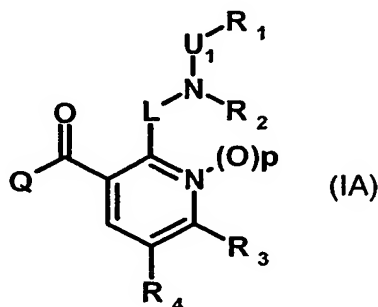
wherein L, U_1 , R_1 , R_2 , R_3 , R_4 , R_{31} and p are as defined above and R_{32} is hydrogen, C_1 - C_4 alkoxycarbonyl or carboxy. That process is illustrated in Scheme 5.

Scheme 5:

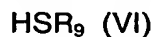


The isomeric compounds of formula IA_c and IA_e can be separated and purified, for example by means of column chromatography and a suitable eluant. In addition, compounds of formula IA_e represent a sub-group of compounds of formula IA and accordingly the present invention relates likewise thereto.

Compounds of formula IA



wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and X₁ or X₂ in the group Q₁ or Q₂, as the case may be, is S(O)_nR₉ can likewise be prepared in accordance with known procedures by reacting a compound of formula IA wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and X₁ or X₂ in the group Q₁ or Q₂, respectively, is hydroxy, with a chlorinating agent, e.g. with oxalyl chloride, and then reacting the resulting compound of formula IA wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and X₁ or X₂ in the group Q₁ or Q₂, respectively, is chlorine, with a thio compound of formula VI

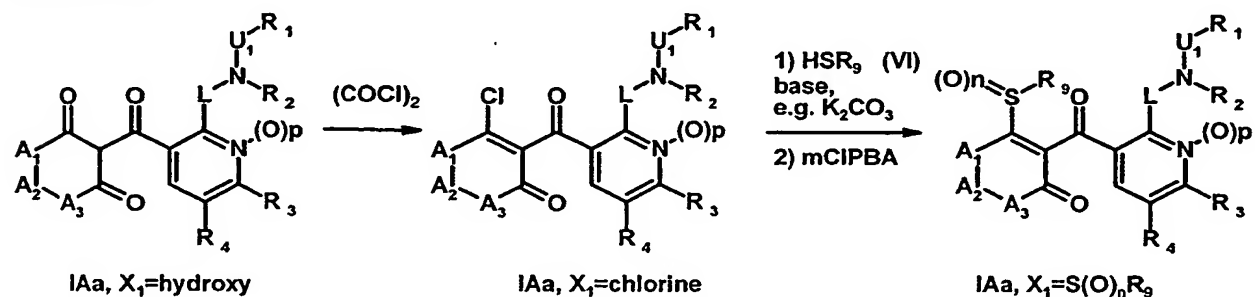


or with a salt of formula VIa

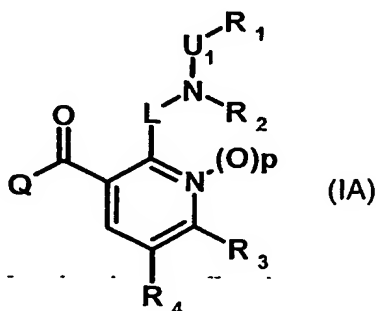


wherein R_9 is as defined above, and optionally with an additional base, e.g. triethylamine, sodium hydride, sodium hydrogen carbonate or potassium carbonate, and for the preparation of a compound of formula IA wherein L, U_1 , R_1 , R_2 , R_3 , R_4 and p are as defined above and X_1 or X_2 in the group Q_1 or Q_2 , respectively, is $S(O)_nR_9$ and n is 1 or 2, treating the resulting compound of formula IA wherein L, U_1 , R_1 , R_2 , R_3 , R_4 and p are as defined above and X_1 or X_2 in the group Q_1 or Q_2 , respectively, is SR_9 , with an oxidising agent, e.g. sodium perbromate, sodium iodate, peracetic acid or m-chloroperbenzoic acid. That process sequence is illustrated in Scheme 6 using the example of compounds of formula IAa as defined above.

Scheme 6:

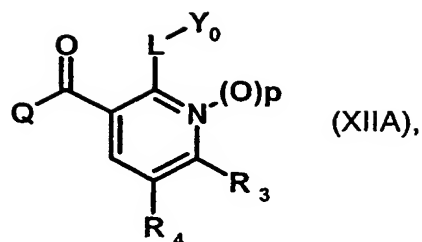


The compounds of formula IA



wherein Q, L, U_1 , R_1 , R_2 , R_3 , R_4 and p are as defined above can also be prepared by reacting a compound of formula XIIA

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wherein Q, L, R₃, R₄ and p are as defined above and Y₀ is a leaving group, such as chlorine, bromine, mesyloxy or tosyloxy, with a corresponding amine compound of formula VIII

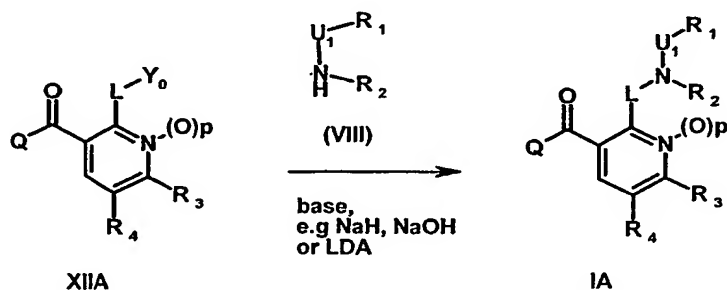


or with a salt of formula VIIIa

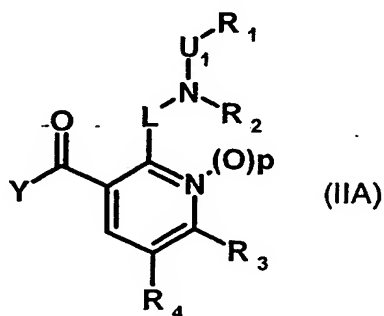


wherein R₁, R₂ and U₁ are as defined above and M⁺ is a metal cation, it being possible to add a base, such as potassium carbonate, sodium hydride, sodium hydroxide, lithium hexamethyldisilazane or lithium diisopropylamide. That general process is illustrated in Scheme 7.

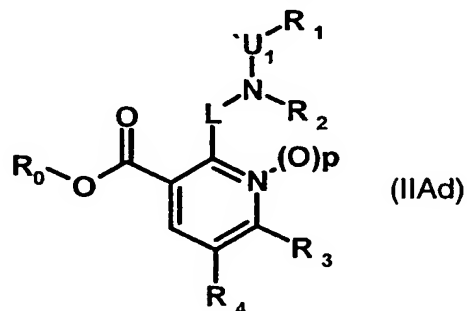
Scheme 7:



The compounds of formula IIA

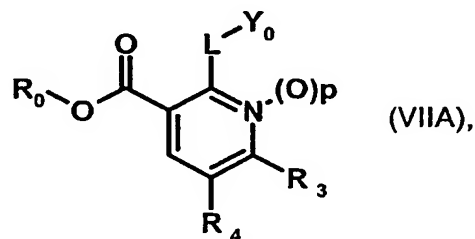


wherein L, U₁, R₁, R₂, R₃, R₄ and p are as defined above and Y is chlorine or cyano can be prepared by known methods from compounds of formula IIAd wherein Y is hydroxy, C₁-C₄-alkoxy, benzyloxy, phenoxy or allyloxy, that is to say from compounds of formula IIAd



wherein L, U₁, R₀, R₁, R₂, R₃, R₄ and p are as defined above.

Such compounds of formula IIAd can be prepared, for example, from compounds of formula VIIA



wherein L, R₀, R₃, R₄ and p are as defined above and Y₀ is a leaving group, such as chlorine, bromine, mesyloxy or tosyloxy, with a corresponding amino compound of formula VIII

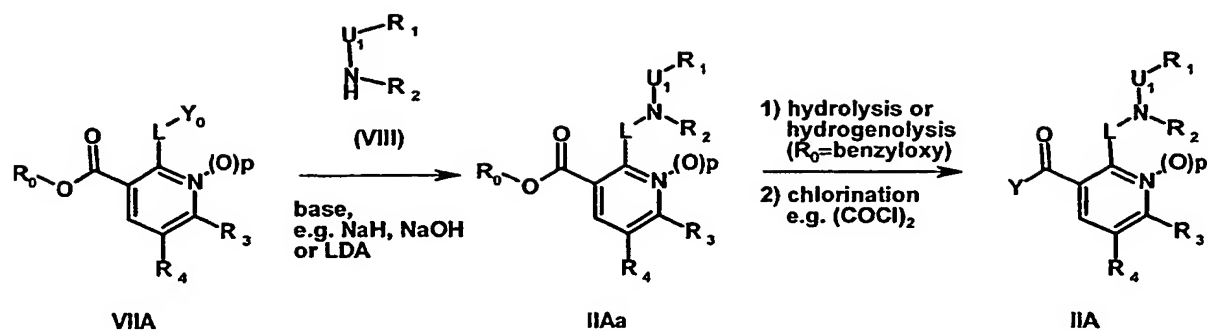


or with a salt of formula VIIa

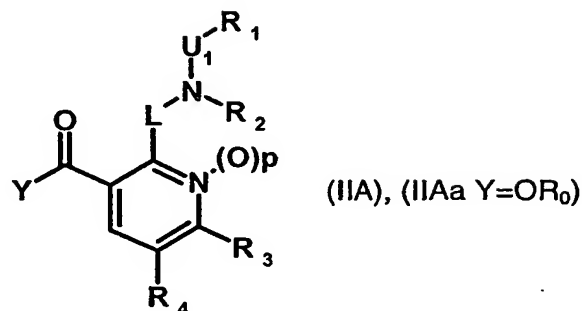


wherein R₁, R₂ and U₁ are as defined above and M⁺ is a metal cation, it being possible to add a base, such as potassium carbonate, sodium hydride, sodium hydroxide, potassium hydroxide, lithium hexamethyldisilazane or lithium diisopropylamide. That general process is illustrated in Scheme 8.

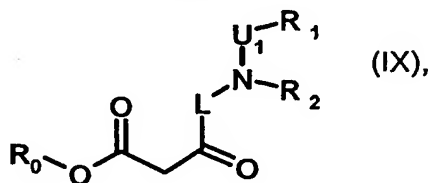
Scheme 8:



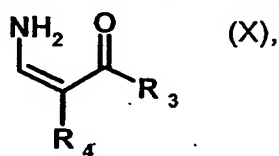
Compounds of formulae IIA and IIAa



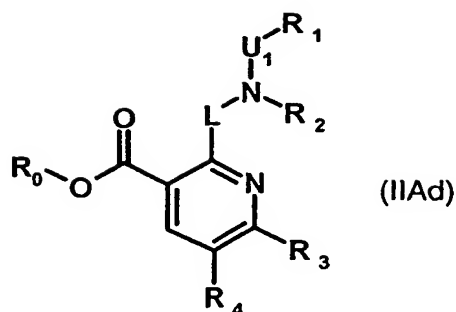
wherein L, U₁, R₀, R₁, R₂, R₄ and p are as defined above and R₃ is C₁-C₃haloalkyl can also be prepared by reacting a compound of formula IX



wherein L, U₁, R₀, R₁ and R₂ are as defined above, with an enamine of formula X

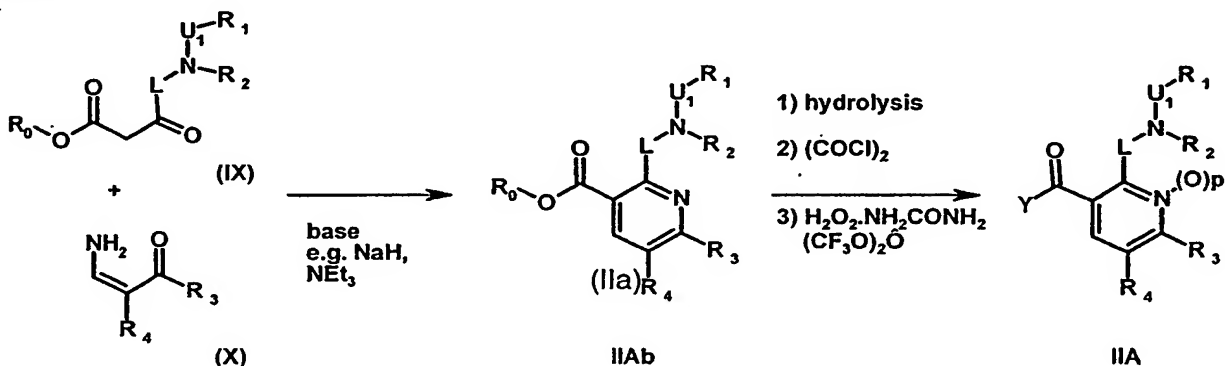


wherein R₄ is as defined above and R₃ is C₁-C₃haloalkyl, yielding a corresponding compound of formula IIA_d



wherein L, U₁, R₀, R₁, R₂ and R₄ are as defined above and R₃ is C₁-C₃haloalkyl and p is 0, and that compound is then reacted further by generally known reaction methods for the conversion of the group R₀-O into a meaning of Y and optionally oxidation of the pyridyl nitrogen atom to the pyridyl-N-oxide, thus yielding a corresponding compound as defined above for formula IIA. That process is illustrated in Scheme 9.

Scheme 9:



Compounds of formula IX can be prepared by reacting an acetoacetic acid ester of formula XI



wherein Y₀ is especially chlorine or bromine and R₀ is C₁-C₄alkoxy, with a corresponding amino compound of formula VIII.



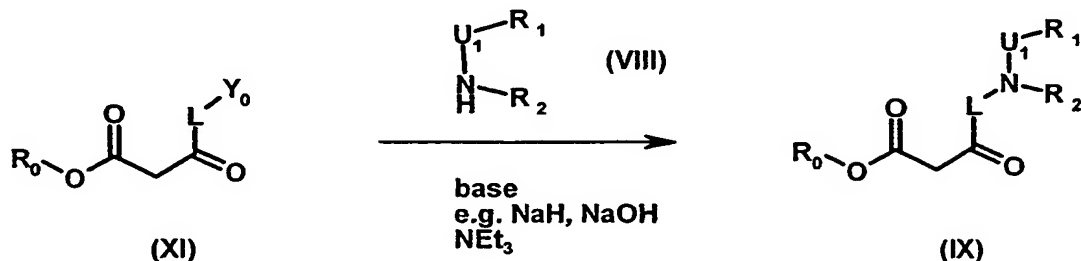
or with a salt of formula VIIIa



wherein R₁, R₂ and U₁ are as defined above and M⁺ is a metal cation, the reaction advantageously being carried out in the presence of potassium carbonate, sodium hydride, sodium

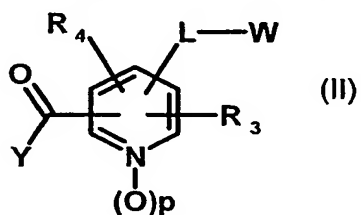
hydroxide, lithium hexamethyldisilazane or lithium diisopropylamide as acid-binding agent and base. That process is illustrated in Scheme 10.

Scheme 10:

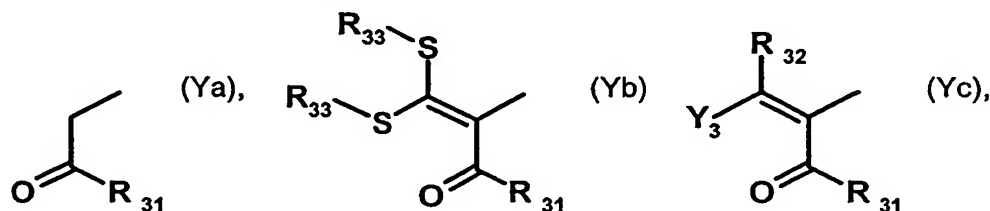


The compounds of formulae IIA, IIAa, IIAb, IIAC, IIAd, IVA and VA are valuable intermediates in the preparation of compounds of formula IA wherein R₃ is C₁-C₃haloalkyl and accordingly the present invention relates also thereto.

Those intermediates according to the invention are represented by the formula II



wherein Y is chlorine, cyano, hydroxy, C₁-C₄alkoxy, benzyloxy, phenoxy, allyloxy, a group



or a group Q₀, wherein Q₀ is accordingly a group Q linked to oxygen and Q, L, U₁, R₁, R₂, R₃, R₄, R₃₁, R₃₂, R₃₃ and p are as defined above for formula I.

The compounds of formula VII and especially compounds of formula VIIA are either known or can be prepared analogously to the methods described in WO 00/15615, WO 00/39094 and WO 01/94339. The compounds of formula XII and especially of formula XIIA are likewise known from the patent specifications mentioned above or can be prepared in accordance with the processes described therein.

The compounds of formula III used as starting materials are known or can be prepared in accordance with generally described methods, e.g. as described in the references

mentioned above. The compounds of formula VIII are either known or can be prepared analogously to known methods, e.g. according to WO 99/18089.

All other compounds of formula I, such as especially those of formulae IB, IC, ID, IE, IF, IG and IH, can be prepared analogously to the processes described above.

The reactions to form compounds of formula I are advantageously carried out in aprotic, inert organic solvents. Such solvents are hydrocarbons, such as benzene, toluene, xylene or cyclohexane, chlorinated hydrocarbons, such as dichloromethane, trichloromethane, tetrachloromethane or chlorobenzene, ethers, such as diethyl ether, ethylene glycol dimethyl ether, diethylene glycol dimethyl ether, tetrahydrofuran or dioxane, nitriles, such as acetonitrile or propionitrile, amides, such as N,N-dimethylformamide, diethylformamide or N-methylpyrrolidinone. The reaction temperatures are preferably from -20°C to +120°C. If the reactions proceed slightly exothermically, they can generally be carried out at room temperature. In order to shorten the reaction time or to initiate the reaction, brief heating, up to the boiling point of the reaction mixture, can be carried out. The reaction times can likewise be shortened by the addition of suitable bases as reaction catalysts. As bases there are used especially the tertiary amines, such as trimethylamine, triethylamine, quinuclidine, 2-methyl-4-ethylpyridine, dimethylaminopyridine, 1,4-diazabicyclo[2.2.2]octane, 1,5-diazabicyclo[4.3.0]non-5-ene or 1,5-diazabicyclo[5.4.0]undec-7-ene. It is also possible, however, to use as bases inorganic bases, such as hydrides, e.g. sodium or calcium hydride, hydroxides, e.g. dry sodium or potassium hydroxide, carbonates, e.g. sodium or potassium carbonate, or hydrogen carbonates, e.g. sodium or potassium hydrogen carbonate.

According to Reaction Schemes 6, 8 and 9, the compounds of formulae I and II are prepared using a chlorinating agent, e.g. thionyl chloride, phosgene, phosphorus pentachloride, phosphorus oxychloride or preferably oxalyl chloride. The reaction is preferably carried out in an inert organic solvent, for example in aliphatic, halogenated aliphatic, aromatic or halogenated aromatic hydrocarbons, for example n-hexane, benzene, toluene, xylenes, dichloromethane, 1,2-dichloroethane or chlorobenzene, at reaction temperatures in the range from -20°C up to the reflux temperature of the reaction mixture, preferably at about +40 to +100°C, and in the presence of a catalytic amount of N,N-dimethylformamide.

For the preparation of compounds of formulae I and IV according to Reaction Scheme 1 or with the aid of a coupling reagent, for example dicyclohexylcarbodiimide, (1-chloro-2-methylpropenyl)-dimethylamine or 2-chloro-1-methylpyridinium iodide, according to Reaction Scheme 2, reaction is preferably likewise carried out in one of the inert organic solvents mentioned above at temperatures from about -20°C to about +100°C, preferably from about +5°C to about +50°C.

The end products of formula I can be isolated in conventional manner by concentration or evaporation of the solvent and purified by recrystallisation or trituration of the solid residue in solvents in which they are not readily soluble, such as ethers, aromatic hydrocarbons or chlorinated hydrocarbons, by distillation or by means of column chromatography or by means of the HPLC technique using a suitable eluant.

The sequence in which the reactions should be carried out in order as far as possible to avoid secondary reactions will also be familiar to the person skilled in the art. Unless the synthesis is specifically aimed at the isolation of pure isomers, the product may be obtained in the form of a mixture of two or more isomers, for example chiral centres in the case of alkyl groups or cis/trans isomerism in the case of alkenyl groups or <E> or <Z> forms, e.g. in respect of a $-C(=NR_6)-$ group. All such isomers can be separated by methods known *per se*, for example chromatography, crystallisation, or produced in the desired form by means of a specific reaction procedure.

Compounds of formula I wherein p is 1, that is to say the corresponding pyridyl-N-oxides of formula I, can be prepared by reacting a compound of formula I wherein p is 0 with a suitable oxidising agent, for example with the H_2O_2 urea adduct in the presence of an acid anhydride, e.g. the trifluoroacetic anhydride. That reaction can be carried out either with compounds of formula I or at the stage of compounds of formula II, V, VII or XII.

For the use according to the invention of the compounds of formula I, or of compositions comprising them, there come into consideration all methods of application customary in agriculture, for example pre-emergence application, post-emergence application and seed dressing, and also various methods and techniques such as, for example, the controlled release of active ingredient. For that purpose a solution of the active ingredient is applied to mineral granule carriers or polymerised granules (urea/formaldehyde) and dried. If required, it is additionally possible to apply a coating (coated granules), which allows the active ingredient to be released in metered amounts over a specific period of time.

The compounds of formula I can be used as herbicides in unmodified form, that is to say as obtained in the synthesis, but they are preferably formulated in customary manner together with the adjuvants conventionally employed in formulation technology e.g. into emulsifiable concentrates, directly sprayable or dilutable solutions, dilute emulsions, suspensions, mixtures of a suspension and an emulsion (suspoemulsions), wettable powders, soluble powders, dusts, granules or microcapsules. Such formulations are described, for example, on pages 9 to 13 of WO 97/34485. As with the nature of the compositions, the methods of application, such as spraying, atomising, dusting, wetting, scattering or pouring, are selected

in accordance with the intended objectives and the prevailing circumstances.

The formulations, that is to say the compositions, preparations or mixtures comprising the compound (active ingredient) of formula I or at least one compound of formula I and, usually, one or more solid or liquid formulation adjuvants, are prepared in known manner, e.g. by homogeneously mixing and/or grinding the active ingredients with the formulation adjuvants, for example solvents or solid carriers. Surface-active compounds (surfactants) may also be used in addition in the preparation of the formulations. Examples of solvents and solid carriers are given, for example, on page 6 of WO 97/34485.

Depending upon the nature of the compound of formula I to be formulated, suitable surface-active compounds are non-ionic, cationic and/or anionic surfactants and surfactant mixtures having good emulsifying, dispersing and wetting properties.

Examples of suitable anionic, non-ionic and cationic surfactants are listed, for example, on pages 7 and 8 of WO 97/34485.

In addition, the surfactants conventionally employed in formulation technology, which are described, *inter alia*, in "McCutcheon's Detergents and Emulsifiers Annual" MC Publishing Corp., Ridgewood New Jersey, 1981, Stache, H., "Tensid-Taschenbuch", Carl Hanser Verlag, Munich/Vienna 1981, and M. and J. Ash, "Encyclopedia of Surfactants", Vol. I-III, Chemical Publishing Co., New York, 1980-81, are also suitable for the preparation of the herbicidal compositions according to the invention.

The compositions according to the invention can additionally include an additive comprising an oil of vegetable or animal origin, a mineral oil, alkyl esters thereof or mixtures of such oils and oil derivatives.

The amounts of oil additive in the composition according to the invention is generally from 0.01 to 2 %, based on the spray mixture. For example, the oil additive can be added to the spray tank in the desired concentration after the spray mixture has been prepared.

Preferred oil additives comprise mineral oils or an oil of vegetable origin, for example rapeseed oil, olive oil or sunflower oil, emulsified vegetable oil, such as AMIGO® obtainable from Rhône-Poulenc Canada Inc., alkyl esters of oils of vegetable origin, for example the methyl derivatives, or an oil of animal origin, such as fish oil or beef tallow. A preferred additive contains as active components essentially 80 % by weight alkyl esters of fish oils and 15 % by weight methylated rapeseed oil, and also 5 % by weight of customary emulsifiers and pH modifiers.

Especially preferred oil additives comprise alkyl esters of higher fatty acids (C_8 - C_{22}), especially the methyl derivatives of C_{12} - C_{18} fatty acids, for example the methyl esters of lauric acid, palmitic acid and oleic acid. Those esters are known as methyl laurate (CAS-111-82-0), methyl palmitate (CAS-112-39-0) and methyl oleate (CAS-112-62-9). A preferred fatty acid methyl ester derivative is Emery® 2230 and 2231 (Henkel subsidiary Cognis GMBH, DE)

The application and action of the oil additives can be improved by combining them with surface-active substances, such as non-ionic, anionic or cationic surfactants. Examples of suitable anionic, non-ionic and cationic surfactants are listed on pages 7 and 8 of WO 97/34485.

Preferred surface-active substances are anionic surfactants of the dodecylbenzylsulfonate type, especially the calcium salts thereof, and also non-ionic surfactants of the fatty alcohol ethoxylate type. Special preference is given to ethoxylated C_{12} - C_{22} fatty alcohols having a degree of ethoxylation of from 5 to 40. Examples of commercially available, preferred surfactants are the Genapol types (Clariant AG, Muttenz, Switzerland). Also preferred for use as surface-active substances are silicone surfactants, especially polyalkyl-oxide-modified heptamethyltrisiloxanes, such as are commercially available as e.g. Silwet L-77®, and also perfluorinated surfactants. The concentration of surface-active substances in relation to the total additive is generally from 1 to 30 % by weight.

Examples of oil additives that consist of mixtures of oils or mineral oils or derivatives thereof with surfactants are Edenor ME SU®, Turbocharge® (Zeneca Agro, Stoney Creek, Ontario, CA) and Actipron® (BP Oil UK Limited, GB).

The addition of an organic solvent to the oil additive/surfactant mixture can also bring about a further enhancement of action. Suitable solvents are, for example, Solvesso® (ESSO) and Aromatic Solvent® (Exxon Corporation) types.

The concentration of such solvents can be from 10 to 80 % by weight of the total weight.

Such oil additives, which are also described, for example, in US-A-4 834 908, are suitable for the composition according to the invention. A commercially available oil additive is known by the name MERGE®, is obtainable from the BASF Corporation and is essentially described, for example, in US-A-4 834 908 in col. 5, as Example COC-1. A further oil additive that is preferred according to the invention is SCORE® (Novartis Crop Protection Canada.)

In addition to the oil additives listed above, in order to enhance the action of the compositions according to the invention it is also possible for formulations of alkyl pyrrolidones, such as are commercially available e.g. as Agrimax®, to be added to the spray mixture. Formulations of synthetic latices, such as, for example, polyacrylamide, polyvinyl compounds or poly-

1-p-menthene, such as are commercially available as e.g. Bond®, Courier® or Emerald®, can also be used to enhance action. Solutions that contain propionic acid, for example Eurogkem Pen-e-trate®, can also be added as action-enhancing agent to the spray mixture.

The herbicidal formulations generally contain from 0.1 to 99 % by weight, especially from 0.1 to 95 % by weight, of herbicide, from 1 to 99.9 % by weight, especially from 5 to 99.8 % by weight, of a solid or liquid formulation adjuvant, and from 0 to 25 % by weight, especially from 0.1 to 25 % by weight, of a surfactant. Whereas commercial products will preferably be formulated as concentrates, the end user will normally employ dilute formulations. The compositions may also comprise further ingredients, such as stabilisers, for example vegetable oils or epoxidised vegetable oils (epoxidised coconut oil, rapeseed oil or soybean oil), anti-foams, for example silicone oil, preservatives, viscosity regulators, binders, tackifiers, and also fertilisers or other active ingredients.

The compounds of formula I are generally applied to plants or the locus thereof at rates of application of from 0.001 to 4 kg/ha, especially from 0.005 to 2 kg/ha. The concentration required to achieve the desired effect can be determined by experiment. It is dependent on the nature of the action, the stage of development of the cultivated plant and of the weed and on the application (place, time, method) and may vary within wide limits as a function of those parameters.

The compounds of formula I are distinguished by herbicidal and growth-inhibiting properties, allowing them to be used in crops of useful plants, especially cereals, cotton, soybeans, sugar beet, sugar cane, plantation crops, rape, maize and rice, and also for non-selective weed control.

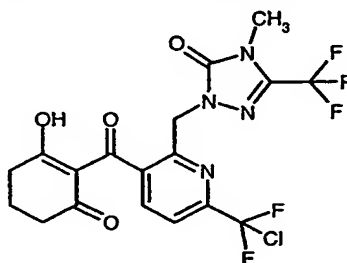
The term "crops" is to be understood as including also crops that have been rendered tolerant to herbicides or classes of herbicides (such as, for example, HPPD inhibitors, ALS inhibitors, EPSPS (5-enol-pyrovyl-shikimate-3-phosphate-synthase) inhibitors, GS (glutamine synthetase) inhibitors) as a result of conventional methods of breeding or genetic engineering. An example of a crop that has been rendered tolerant to imidazolinones, e.g. Imazamox, by conventional methods of breeding (mutagenesis) is Clearfield® summer rape (Canola). Examples of crops that have been rendered tolerant to herbicides or classes of herbicides by genetic engineering methods include glyphosate- and glufosinate-resistant maize varieties commercially available under the trade names RoundupReady® and LibertyLink®.

The weeds to be controlled may be both monocotyledonous and dicotyledonous weeds, such as, for example, Stellaria, Nasturtium, Agrostis, Digitaria, Avena, Setaria, Sinapis,

Lolium, Solanum, Echinochloa, Scirpus, Monochoria, Sagittaria, Bromus, Alopecurus, Sorghum halepense, Rottboellia, Cyperus, Abutilon, Sida, Xanthium, Amaranthus, Chenopodium, Ipomoea, Chrysanthemum, Galium, Viola and Veronica.

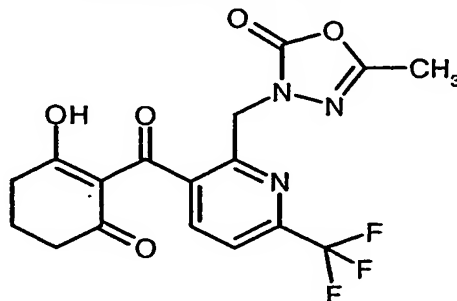
The following Examples further illustrate the invention but do not limit the invention.

Preparation Example P1: 2-[6-(Chloro-difluoro-methyl)-3-(2-hydroxy-6-oxo-cyclohex-1-ene-carbonyl)-pyridin-2-ylmethyl]-4-methyl-5-trifluoromethyl-2,4-dihydro-[1.2.4]triazol-3-one:



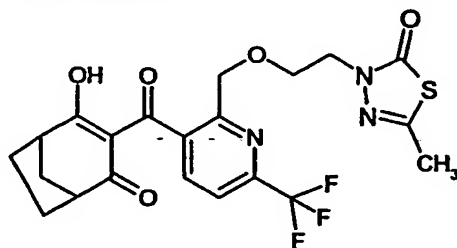
65 mg (0.17 mmol) of 6-(chloro-difluoro-methyl)-2-(4-methyl-5-oxo-3-trifluoromethyl-4,5-dihydro-[1.2.4]triazol-1-ylmethyl)-nicotinic acid (Preparation Example P6) are heated at 50°C for 30 minutes in 5 ml of hexane with 0.02 ml of oxalyl chloride and a catalytic amount of dimethylformamide. The mixture is then concentrated by evaporation and taken up in 1 ml of acetonitrile, and the 6-(chloro-difluoro-methyl)-2-(4-methyl-5-oxo-3-trifluoromethyl-4,5-dihydro[1.2.4]triazol-1-ylmethyl)-nicotinic acid chloride so prepared is transferred into a solution of 60 mg (0.15 mmol) of cyclohexane-1,3-dione and 40 mg (0.4 mmol) of triethylamine in 2 ml of acetonitrile. After 40 minutes' stirring at room temperature, 1 drop of acetone cyanohydrin is added and stirring is continued for a further 2 hours. The reaction product is then taken up in ethyl acetate and washed once with dilute hydrochloric acid and once with sodium chloride solution, concentrated and purified by chromatography using the HPLC technique. Pure 2-[6-(chloro-difluoro-methyl)-3-(2-hydroxy-6-oxo-cyclohex-1-ene-carbonyl)-pyridin-2-ylmethyl]-4-methyl-5-trifluoromethyl-2,4-dihydro-[1.2.4]triazol-3-one is thus obtained in the form of a resin; ¹H-NMR (CDCl₃ in ppm relative to TMS): 16.96, b, 1H; 7.60, m, 2H; 5.18, s, 2H; 3.33, s, 3H; 2.82, m, 2H; 2.50, m, 2H; 2.19, m, 2H.

Preparation Example P2: 3-[3-(2-Hydroxy-6-oxo-cyclohex-1-enecarbonyl)-6-trifluoromethyl-pyridin-2-ylmethyl]-5-methyl-3H-[1.3.4]oxadiazol-2-one:



514 mg (1.694 mmol) of 2-(5-methyl-2-oxo-[1.3.4]oxadiazol-3-ylmethyl)-6-trifluoromethyl-nicotinic acid (Preparation Example P4) are introduced into 20 ml of dry methylene chloride. At 0°C, 0.264 ml (1.864 mmol) of (1-chloro-2-methyl-propenyl)-dimethyl-amine are squirted in and the mixture is then stirred at 20°C for 2 hours. At 0°C, 0.190 g (1.694 mmol) of cyclohexane-1,3-dione and 0.354 ml (2.542 mmol) of triethylamine are then added and the mixture is stirred at 20°C for 2 hours. The mixture is concentrated by evaporation and taken up in 20 ml of anhydrous acetonitrile, and 0.354 ml (2.542 mmol) of triethylamine and 0.155 ml (1.694 mmol) of acetone cyanohydrin are added to the reaction mixture. The reaction mixture is stirred at 20°C for a further 20 hours and then concentrated by evaporation. The residue is purified by chromatography. The fractions are combined and concentrated. 0.570 g (84.7 %) of pure 3-[3-(2-hydroxy-6-oxo-cyclohex-1-enecarbonyl)-6-trifluoromethyl-pyridin-2-ylmethyl]-5-methyl-3H-[1.3.4]oxadiazol-2-one is thus obtained in the form of a beige solid; ¹H-NMR (CDCl₃ in ppm relative to TMS): 17.6, b, 1H; 7.65, m, 2H; 4.98, s, 2H; 2.84, m, 2H; 2.48, m, 2H; 2.20, s, 3H; 2.08, m, 2H.

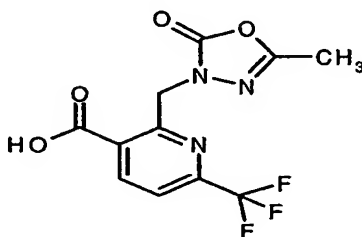
Preparation Example P3: 3-{2-[3-(2-Hydroxy-4-oxo-bicyclo[3.2.1]oct-2-ene-3-carbonyl)-6-trifluoromethyl-pyridin-2-ylmethoxy]-ethyl}-5-methyl-3H-[1.3.4]thiadiazol-2-one:



71 mg (1.635 mmol) of sodium hydride in the form of a 55 % dispersion in oil are introduced into 2 ml of dry DMF. At 0°C, a solution of 300 mg (0.743 mmol) of 3-[2-(2-chloro-ethoxy-methyl)-6-trifluoromethyl-pyridine-3-carbonyl]-4-hydroxy-bicyclo[3.2.1]oct-3-en-2-one in 4 ml of anhydrous DMF is added dropwise. The reaction mixture is stirred at room temperature

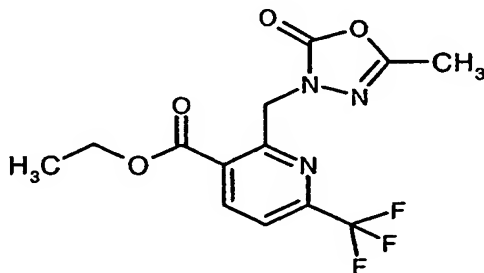
for 2 hours. In parallel, a further 71 mg (1.635 mmol) of sodium hydride in the form of a 55 % dispersion in oil are introduced into a second flask and, at 0°C, 95 mg (0.817 mmol) of 5-methyl-3H-[1.3.4]thiadiazol-2-one are added. This mixture is also stirred at room temperature for 2 hours. Then, at the same temperature, the contents of the second flask are rapidly added to the reaction mixture in the first flask. The combined reaction mixture is then stirred at 20°C for 4 hours and at 80°C for 16 hours. The reaction product is poured into water and extracted with ethyl acetate. The organic phases are washed once with sodium chloride solution, dried over sodium sulfate and concentrated. The residue is purified by chromatography. 200 mg (55.7 %) of pure 3-{2-[3-(2-hydroxy-4-oxo-bicyclo[3.2.1]oct-2-ene-3-carbonyl)-6-trifluoromethyl-pyridin-2-ylmethoxy]-ethyl}-5-methyl-3H-[1.3.4]thiadiazol-2-one are thus obtained in the form of a resin; ¹H-NMR (CDCl₃ in ppm relative to TMS): 16.9, b, 1H; 7.6, m, 2H; 4.72, s, 2H; 3.87, t, 2H; 3.62, t, 2H; 3.15, m, 1H; 2.87, m, 1H; 2.35, s, 3H; 2.3-2.0, m, 4H; 1.75, m, 2H.

Preparation Example P4: 2-(5-Methyl-2-oxo-[1.3.4]oxadiazol-3-ylmethyl)-6-trifluoromethyl-nicotinic acid:



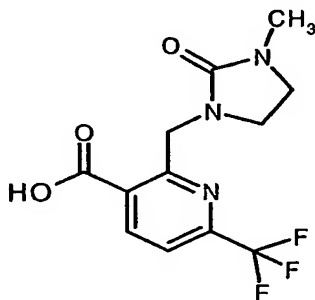
500 mg (1.509 mmol) of 2-(5-methyl-2-oxo-[1.3.4]oxadiazol-3-ylmethyl)-6-trifluoromethyl-nicotinic acid ethyl ester (Preparation Example P5) are introduced into 40 ml of a 1:1 mixture of THF/water at room temperature. At 0°C, 69.7 mg (1.66 mmol) of LiOH•H₂O are added. The reaction mixture is then stirred at the same temperature for 30 minutes. The reaction product is then extracted with ethyl acetate, washed with saturated sodium chloride solution, dried over sodium sulfate and concentrated by evaporation, yielding 420 mg (92 %) of 2-(5-methyl-2-oxo-[1.3.4]oxadiazol-3-ylmethyl)-6-trifluoromethyl-nicotinic acid in the form of a white solid; ¹H-NMR (CD₃CN in ppm relative to TMS): 8.55, d, 1H; 7.82, d, 1H; 5.39, s, 2H; 2.20, s, 3H.

Preparation Example P5: 2-(5-Methyl-2-oxo-[1.3.4]oxadiazol-3-ylmethyl)-6-trifluoromethyl-nicotinic acid ethyl ester:



2.0 g (7.45 mmol) of 2-chloromethyl-6-trifluoromethyl-nicotinic acid ethyl ester are introduced into 8 ml of dry DMF at room temperature, and 1.0 g (8.19 mmol) of the sodium salt of 5-methyl-3H-[1.3.4]oxadiazol-2-one is added. The reaction mixture is then stirred at the same temperature for 20 hours. The reaction product is then diluted with water and extracted with ethyl acetate. The organic phases are washed once with sodium chloride solution, dried over sodium sulfate and concentrated. The residue is concentrated by evaporation and purified by chromatography, yielding 2.04 g (82 %) of 2-(5-methyl-2-oxo-[1.3.4]oxadiazol-3-ylmethyl)-6-trifluoromethyl-nicotinic acid ethyl ester in the form of a white powder; $^1\text{H-NMR}$ (CDCl_3 in ppm relative to TMS): 8.48, d, 1H; 7.67, d, 1H; 5.45, s, 2H; 4.42, q, 2H; 2.26, s, 3H; 1.43, t, 3H.

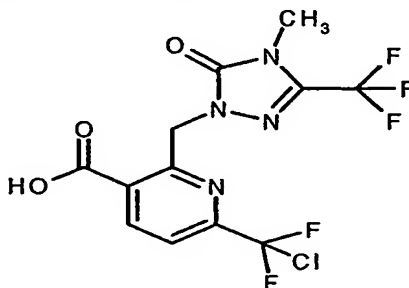
Preparation Example P6: 2-(3-Methyl-imidazolidin-2-on-1-ylmethyl)-6-trifluoromethylnicotinic acid:



1.66 g (16.6 mmol) of 1-methyl-2-imidazolidinone are introduced into 50 ml of dry tetrahydrofuran. At room temperature, 0.96 g (16.6 mmol) of pulverulent potassium hydroxide and 0.15 g (0.55 mmol) of 1,4,7,10,13,16-hexaoxacyclooctadecane are added thereto. The reaction mixture is stirred at room temperature for 2.5 hours. Then 1.48 g (5.53 mmol) of 2-chloromethyl-6-trifluoromethylnicotinic acid ethyl ester in 10 ml of dry tetrahydrofuran are added dropwise at room temperature in the course of 20 minutes. The reaction mixture is stirred at the same temperature for 22 hours. The reaction product is then diluted with water

and extracted with ethyl acetate. The organic phases are washed with water. The aqueous phases are combined and rendered acidic with HCl (1M solution). The aqueous phase is then extracted with ethyl acetate and the organic phases from the acidic extraction are combined, dried over sodium sulfate and concentrated. The residue is concentrated by evaporation, diluted with 8 ml of tetrabutyl methyl ether (TBME), stirred, filtered, concentrated, and dried under a high vacuum. 1.09 g of 2-(3-methyl-imidazolidin-2-on-1-ylmethyl)-6-trifluoromethylnicotinic acid are obtained in the form of a light-beige solid; $^1\text{H-NMR}$ (CD_3OD in ppm relative to TMS): 8.52, d, 1H; 7.78, d, 1H; 4.94, s, 2H; 3.65-3.35, 2xm, 2x2H; 2.82, s, 3H.

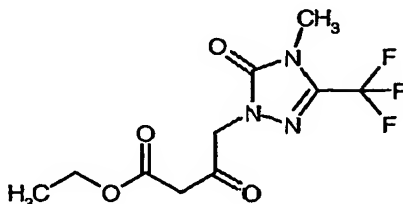
Preparation Example P7: 6-(Chloro-difluoro-methyl)-2-(4-methyl-5-oxo-3-trifluoromethyl-4,5-dihydro-[1.2.4]triazol-1-ylmethyl)-nicotinic acid:



1 g (30 mmol) of 90 % 4-(4-methyl-5-oxo-3-trifluoromethyl-4,5-dihydro-[1.2.4]triazol-1-yl)-3-oxo-butyric acid ethyl ester (Preparation Example P7) and 0.52 g (31 mmol) of 4-amino-1-chloro-1,1-difluoro-but-3-en-2-one are together heated at boiling temperature for 8 hours in 30 ml of toluene in the presence of 0.14 ml (1.8 mmol) of trifluoroacetic acid. The reaction product is then taken up in ethyl acetate and washed once with sodium hydrogen carbonate solution and once with sodium chloride solution. The residue is concentrated by evaporation and purified by chromatography, and 6-(chloro-difluoro-methyl)-2-(4-methyl-5-oxo-3-trifluoromethyl-4,5-dihydro-[1.2.4]triazol-1-ylmethyl)-nicotinic acid ethyl ester is thus obtained in the form of an 80 % product; $^1\text{H-NMR}$ (CDCl_3 in ppm relative to TMS): 8.45, d, 1H; 7.62, d, 1H; 5.65, s, 2H; 4.38, q, 2H; 3.45, s, 3H; 1.44, t, 3H.

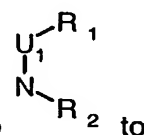
The product is then hydrolysed in the presence of 1.4 equivalents of potassium hydroxide in a 1:1 mixture of dioxane/water at room temperature. The organic solvent and neutral secondary components are removed with diethyl ether and the aqueous phase is then acidified with hydrochloric acid and extracted with ethyl acetate. Pure 6-(chloro-difluoro-methyl)-2-(4-methyl-5-oxo-3-trifluoromethyl-4,5-dihydro-[1.2.4]triazol-1-ylmethyl)-nicotinic acid is thus obtained in the form of a crystalline product; $^1\text{H-NMR}$ (CDCl_3 in ppm relative to TMS): 10.42, b, 1H; 8.42, d, 1H; 7.61, d, 1H; 5.72, s, 2H; 3.50, s, 3H.

Preparation Example P8: 4-(4-Methyl-5-oxo-3-trifluoromethyl-4,5-dihydro-[1.2.4]triazol-1-yl)-3-oxo-butyric acid ethyl ester:

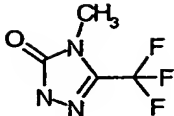


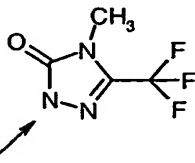
1.35 g (31 mol) of sodium hydride in the form of a 55 % dispersion in oil are introduced into 30 ml of tetrahydrofuran. 2.55 g (15 mmol) of solid 4-methyl-5-trifluoromethyl-2,4-dihydro-[1.2.4]triazol-3-one hydroiodide are stirred in at room temperature and the mixture is briefly heated to 40°C to complete the evolution of hydrogen. 1.95 ml (13.8 mmol) of 4-chloro-acetoacetic acid ethyl ester are then added dropwise to the resulting viscous suspension at a temperature of 20°C; 4 drops of 15-crown-5 are added and the mixture is stirred at the same temperature for 16 hours. The reaction product is then poured into water and adjusted to pH 3 with hydrochloric acid, extracted with diethyl ether, washed with saturated sodium chloride solution and concentrated by evaporation. The residue is purified by chromatography (ethyl acetate/hexane gradient), 4-(4-methyl-5-oxo-3-trifluoromethyl-4,5-dihydro-[1.2.4]triazol-1-yl)-3-oxo-butyric acid ethyl ester being obtained in the form of a viscous oil; ¹H-NMR (CDCl₃ in ppm relative to TMS): 4.83, s, 2H; 4.22, q, 2H; 3.55, s, 2H; 3.39, s, 3H; 1.28, t, 3H.

All further compounds of formula I can be prepared analogously to the preparation methods and Examples described above.

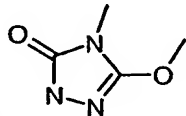


In the following Tables, the linkage site of the individual structures of the group the substituent L is the nitrogen atom located at the same geometric position, as indicated in each case.

For example, the linkage site of the group  in the case of compound A 1.001 is

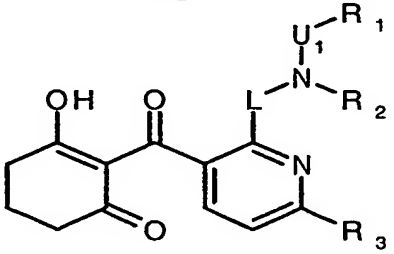
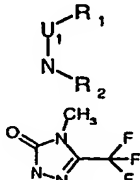
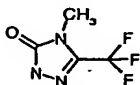
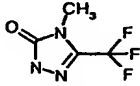
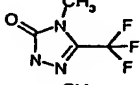
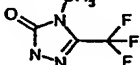
the position indicated by an arrow: 

The free valencies in these structures are terminal CH₃ groups,

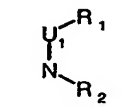
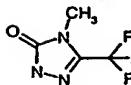
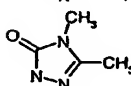
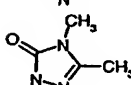
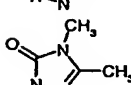
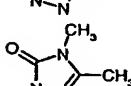
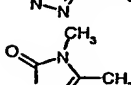
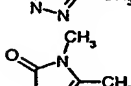
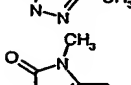
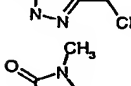
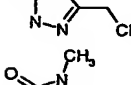
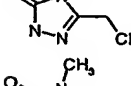
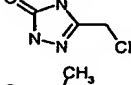
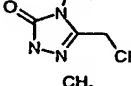
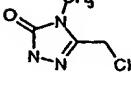
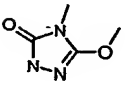
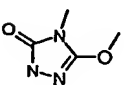
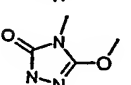
such as, for example, in the case of the structure ,

which can also be represented as follows: 

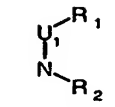
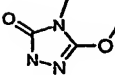
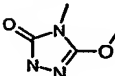
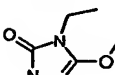
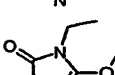
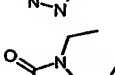
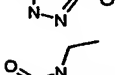
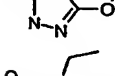
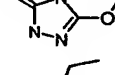
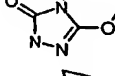
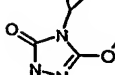
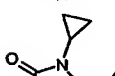
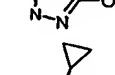
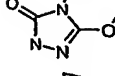
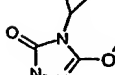
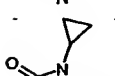
Table A1: Compounds of formula IAa₁:

Comp. No.	R ₃	L		(IAa ₁)	Phys. data
A1.001 (P1)	CF ₂ Cl	CH ₂			resin
A1.002	CF ₂ H	CH ₂			
A1.003	CF ₃	CH ₂			
A1.004	CF ₃	CH ₂ OCH ₂ CH ₂			
A1.005	CF ₂ Cl	CH ₂ OCH ₂ CH ₂			

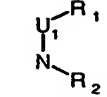
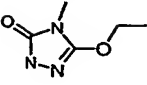
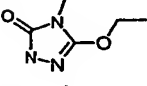
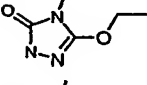
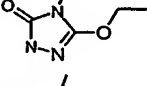
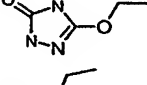
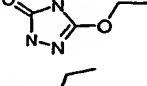
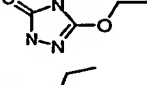
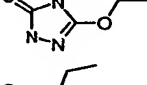
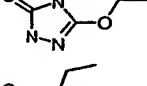
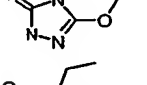
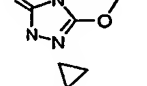
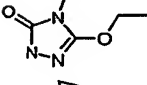
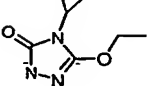
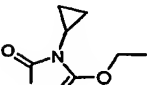

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Comp. No.	R ₃	L		Phys. data
A1.006	CHF ₂	CH ₂ OCH ₂ CH ₂		solid
A1.007	CF ₃	CH ₂		
A1.008	CF ₂ Cl	CH ₂		
A1.009	CHF ₂	CH ₂		
A1.010	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.011	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.012	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.013	CF ₃	CH ₂		
A1.014	CF ₂ Cl	CH ₂		
A1.015	CHF ₂	CH ₂		
A1.016	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.017	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.018	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.019	CF ₃	CH ₂		solid
A1.020	CF ₂ Cl	CH ₂		
A1.021	CHF ₂	CH ₂		
A1.022	CF ₃	CH ₂ OCH ₂ CH ₂		


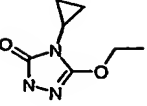
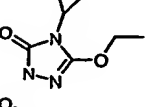
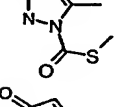
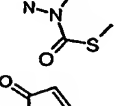
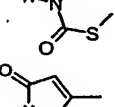
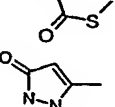
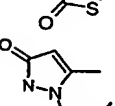
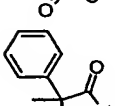
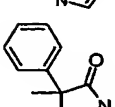
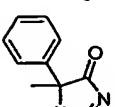
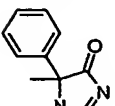
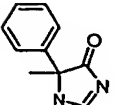

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Comp. No.	R ₃	L		Phys. data
A1.023	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		solid
A1.024	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.025	CF ₃	CH ₂		
A1.026	CF ₂ Cl	CH ₂		
A1.027	CHF ₂	CH ₂		
A1.028	CF ₃	CH ₂ OCH ₂ CH ₂		solid
A1.029	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.030	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.031	CF ₃	CH ₂		
A1.032	CF ₂ Cl	CH ₂		
A1.033	CHF ₂	CH ₂		solid
A1.034	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.035	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.036	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.037	CF ₃	CH ₂		


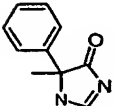

















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Comp. No.	R ₃	L		Phys. data
A1.038	CF ₂ Cl	CH ₂		
A1.039	CHF ₂	CH ₂		
A1.040	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.041	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.042	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.043	CF ₃	CH ₂		resin
A1.044	CF ₂ Cl	CH ₂		
A1.045	CHF ₂	CH ₂		
A1.046	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.047	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.048	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.049	CF ₃	CH ₂		resin
A1.050	CF ₂ Cl	CH ₂		
A1.051	CHF ₂	CH ₂		
A1.052	CF ₃	CH ₂ OCH ₂ CH ₂		


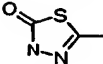
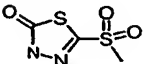
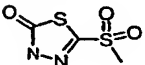
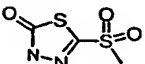
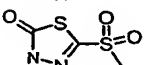
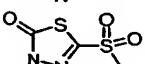
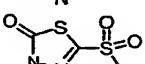
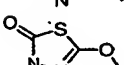
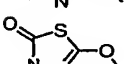
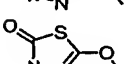
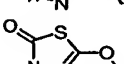
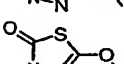
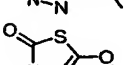
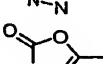
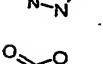
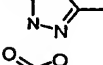
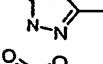
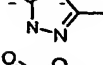
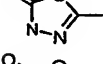
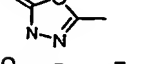
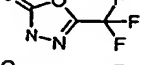
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Comp. No.	R ₃	L		Phys. data
A1.053	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.054	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.055	CF ₃	CH ₂		resin
A1.056	CF ₂ Cl	CH ₂		
A1.057	CHF ₂	CH ₂		
A1.058	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.059	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.060	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.061	CF ₃	CH ₂		
A1.062	CF ₂ Cl	CH ₂		
A1.063	CHF ₂	CH ₂		
A1.064	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.065	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		


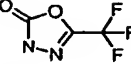
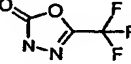
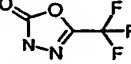
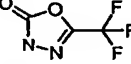






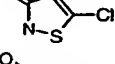
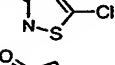
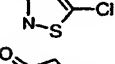
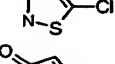
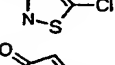
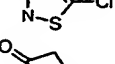





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Comp. No.	R ₃	L		Phys. data
A1.066	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.067	CF ₃	CH ₂		
A1.068	CF ₂ Cl	CH ₂		
A1.069	CHF ₂	CH ₂		
A1.070	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.071	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.072	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.073	CF ₃	CH ₂		m.p.: 140°C
A1.074	CF ₂ Cl	CH ₂		m.p.: 125-127°C
A1.075	CHF ₂	CH ₂		
A1.076	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.077	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.078	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.079	CF ₃	CH ₂		amorphous crystals
A1.080	CF ₂ Cl	CH ₂		
A1.081	CHF ₂	CH ₂		
A1.082	CF ₃	CH ₂ OCH ₂ CH ₂		resin
A1.083	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

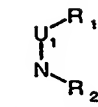

















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Comp. No.	R ₃	L		Phys. data
A1.084	CHF ₂	CH ₂ OCH ₂ CH ₂		amorphous crystals
A1.085	CF ₃	CH ₂		
A1.086	CF ₂ Cl	CH ₂		
A1.087	CHF ₂	CH ₂		
A1.088	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.089	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		resin
A1.090	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.091	CF ₃	CH ₂		
A1.092	CF ₂ Cl	CH ₂		
A1.093	CHF ₂	CH ₂		
A1.094	CF ₃	CH ₂ OCH ₂ CH ₂		amorphous crystals m.p.: 130-132°C
A1.095	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.096	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.097	CF ₃ (P2)	CH ₂		
A1.098	CF ₂ Cl	CH ₂		
A1.099	CHF ₂	CH ₂		resin
A1.100	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.101	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.102	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.103	CF ₃	CH ₂		
A1.104	CF ₂ Cl	CH ₂		

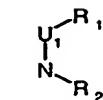








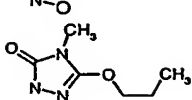
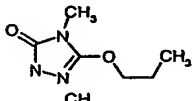
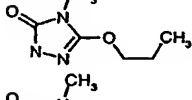
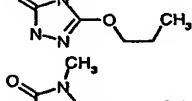
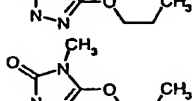
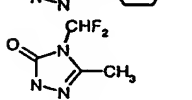
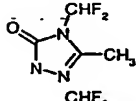
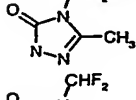
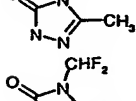
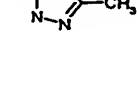

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Comp. No.	R ₃	L		Phys. data
A1.105	CHF ₂	CH ₂		
A1.106	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.107	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.108	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.109	CF ₃	CH ₂		resin
A1.110	CF ₂ Cl	CH ₂		
A1.111	CHF ₂	CH ₂		
A1.112	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.113	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.114	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.115	CF ₃	CH ₂		resin
A1.116	CF ₂ Cl	CH ₂		
A1.117	CHF ₂	CH ₂		
A1.118	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.119	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.120	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.121	CF ₃	CH ₂		
A1.122	CF ₂ Cl	CH ₂		
A1.123	CHF ₂	CH ₂		
A1.124	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.125	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

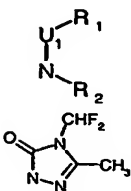
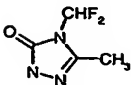
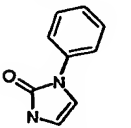
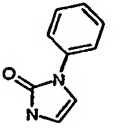
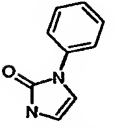
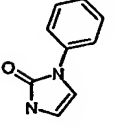
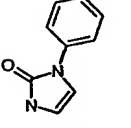
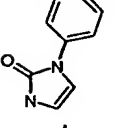
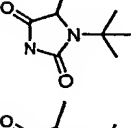
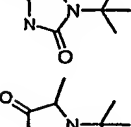
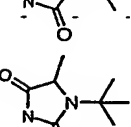
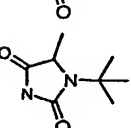

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Comp. No.	R ₃	L		Phys. data
A1.126	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.127	CF ₃	CH ₂		
A1.128	CF ₂ Cl	CH ₂		
A1.129	CHF ₂	CH ₂		
A1.130	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.131	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.132	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.133	CF ₃	CH ₂		
A1.134	CF ₂ Cl	CH ₂		
A1.135	CHF ₂	CH ₂		
A1.136	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.137	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.138	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.139	CF ₃	CH ₂		
A1.140	CF ₂ Cl	CH ₂		
A1.141	CHF ₂	CH ₂		
A1.142	CF ₃	CH ₂ OCH ₂ CH ₂		


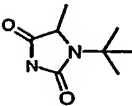
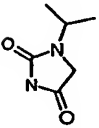
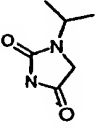
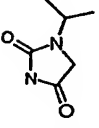
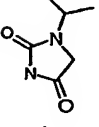
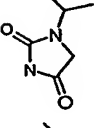
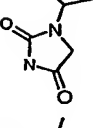
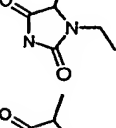
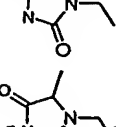
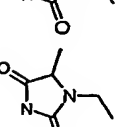
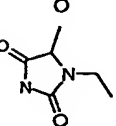

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Comp. No.	R ₃	L		Phys. data
A1.143	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.144	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.145	CF ₃	CH ₂		
A1.146	CF ₂ Cl	CH ₂		
A1.147	CHF ₂	CH ₂		
A1.148	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.149	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.150	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.151	CF ₃	CH ₂		
A1.152	CF ₂ Cl	CH ₂		
A1.153	CHF ₂	CH ₂		
A1.154	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.155	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.156	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.157	CF ₃	CH ₂		
A1.158	CF ₂ Cl	CH ₂		
A1.159	CHF ₂	CH ₂		
A1.160	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.161	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

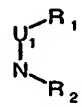
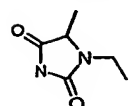
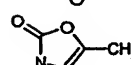
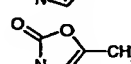
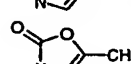
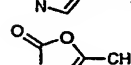
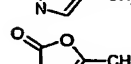
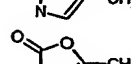
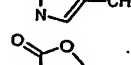
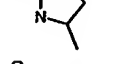
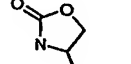
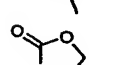
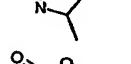
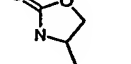
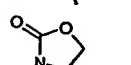
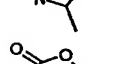
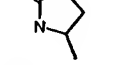
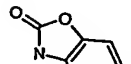
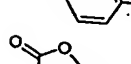
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Comp. No.	R ₃	L		Phys. data
A1.162	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.163	CF ₃	CH ₂		
A1.164	CF ₂ Cl	CH ₂		
A1.165	CHF ₂	CH ₂		
A1.166	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.167	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.168	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.169	CF ₃	CH ₂		
A1.170	CF ₂ Cl	CH ₂		
A1.171	CHF ₂	CH ₂		
A1.172	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.173	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

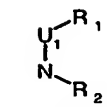
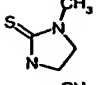
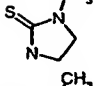
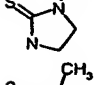
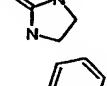
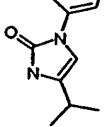
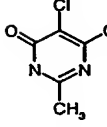
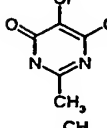
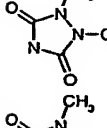
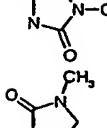
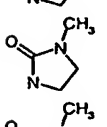
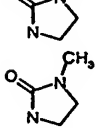
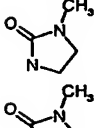
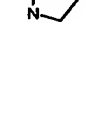

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Comp. No.	R ₃	L		Phys. data
A1.174	CHF ₂	CH ₂ OCH ₂ CH ₂		m.p.: 141°C
A1.175	CF ₃	CH ₂		
A1.176	CF ₂ Cl	CH ₂		
A1.177	CHF ₂	CH ₂		
A1.178	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.179	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		m.p.: 151°C
A1.180	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.181	CF ₃	CH ₂		
A1.182	CF ₂ Cl	CH ₂		
A1.183	CHF ₂	CH ₂		
A1.184	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.185	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

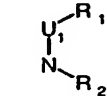
















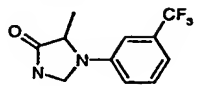
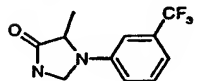
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Comp. No.	R ₃	L		Phys. data
A1.186	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.187	CF ₃	CH ₂		
A1.188	CF ₂ Cl	CH ₂		
A1.189	CHF ₂	CH ₂		
A1.190	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.191	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.192	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.193	CF ₃	CH ₂		solid
A1.194	CF ₂ Cl	CH ₂		
A1.195	CHF ₂	CH ₂		
A1.196	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.197	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.198	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.199	CF ₃	CH ₂		solid
A1.200	CF ₂ Cl	CH ₂		
A1.201	CHF ₂	CH ₂		
A1.202	CF ₃	CH ₂		solid
A1.203	CF ₂ Cl	CH ₂		

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Comp. No.	R ₃	L		Phys. data
A1.204	CHF ₂	CH ₂		
A1.205	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.206	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.207	CHF ₂	CH ₂ OCH ₂ CH ₂		
A1.208	CF ₃	CH ₂		resin
A1.209	CF ₃	CH ₂		resin
A1.210	CHF ₂	CH ₂		
A1.211	CF ₃	CH ₂		solid
A1.212	CHF ₂	CH ₂		
A1.213	CF ₃	CH ₂		solid
A1.214	CF ₂ Cl	CH ₂		
A1.215	CHF ₂	CH ₂		
A1.216	CF ₃	CH ₂ OCH ₂ CH ₂		
A1.217	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A1.218	CHF ₂	CH ₂ OCH ₂ CH ₂		

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Comp. No.	R ₃	L		Phys. data
A1.219	CF ₃	CH ₂		solid
A1.220	CF ₃	CH ₂ OCH ₂ CH ₂		resin
A1.221	CF ₃	CH ₂		resin
A1.222	CF ₃	CH ₂		solid
A1.223	CF ₃	CH ₂		solid
A1.224	CF ₃	CH ₂		
A1.225	CClF ₂	CH ₂		
A1.226	CClF ₂	CH ₂		
A1.227	CClF ₂	CH ₂		
A1.228	CClF ₂	CH ₂		
A1.229	CClF ₂	CH ₂		
A1.230	CHF ₂	CH ₂		
A1.231	CHF ₂	CH ₂		
A1.232	CHF ₂	CH ₂		
A1.233	CHF ₂	CH ₂		
A1.234	CHF ₂	CH ₂		
A1.235	CF ₃	CH ₂		m.p.: 181°C
A1.236	CHF ₂	CH ₂		

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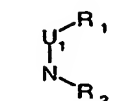
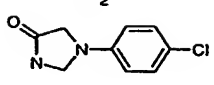
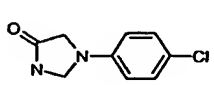
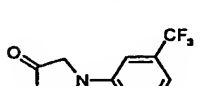
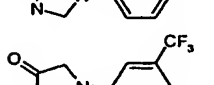
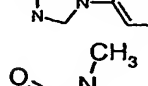
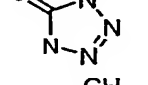
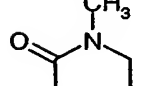
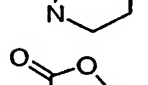
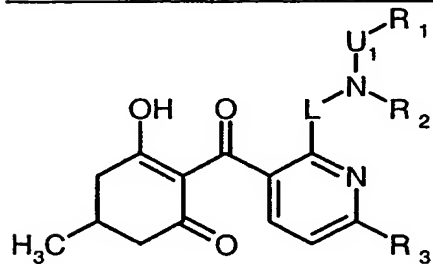
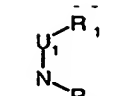
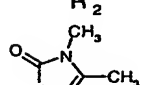
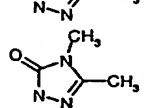
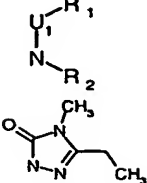
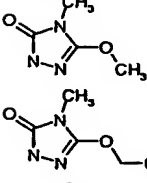
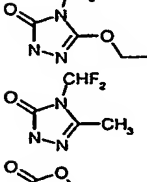
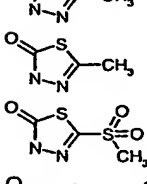
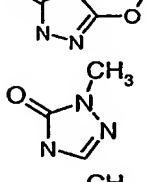
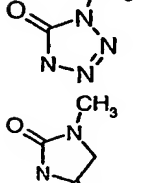
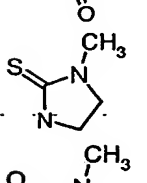
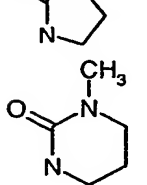


Comp. No.	R ₃	L		Phys. data
A1.237	CF ₃	CH ₂		m.p.: 182°C
A1.238	CHF ₂	CH ₂		
A1.240	CF ₃	CH ₂		m.p.: 157°C
A1.241	CHF ₂	CH ₂		
A1.242	CF ₃	CH ₂		
A1.243	CF ₃	CH ₂		
A1.244	CF ₃	CH ₂		
A1.245	CF ₃	CH ₂		resin; p=1 (N-oxide)

Table A2: Compounds of formula IAa₂:(IAa₂)

Comp. No.	R ₃	L		Phys. data
A2.001	CF ₃	CH ₂		
A2.002	CF ₂ H	CH ₂		

Comp. No.	R ₃	L		Phys. data
A2.003	CF ₃	CH ₂		
A2.004	CF ₃	CH ₂		
A2.005	CF ₃	CH ₂		
A2.006	CF ₃	CH ₂		
A2.007	CF ₃	CH ₂		
A2.018	CF ₃	CH ₂		
A2.019	CF ₃	CH ₂		
A2.010	CF ₃	CH ₂		
A2.011	CF ₃	CH ₂		
A2.012	CF ₃	CH ₂		
A2.013	CF ₃	CH ₂		
A2.014	CF ₃	CH ₂		
A2.015	CF ₃	CH ₂		
A2.016	CF ₃	CH ₂		
A2.017	CF ₃	CH ₂		

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
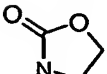
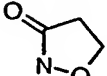

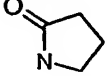
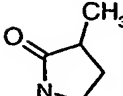
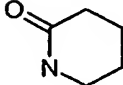
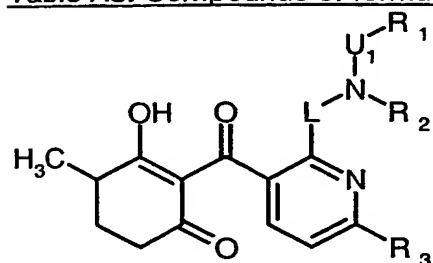
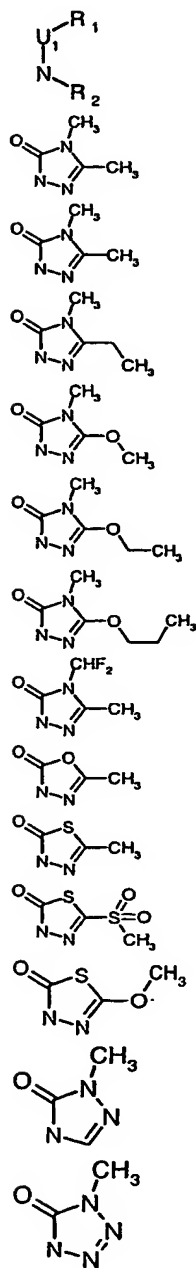
Comp. No.	R ₃	L		Phys. data
A2.018	CF ₃	CH ₂		
A2.019	CF ₃	CH ₂		
A2.020	CF ₃	CH ₂		
A2.021	CF ₃	CH ₂		
A2.022	CF ₃	CH ₂		
A2.023	CF ₃	CH ₂		

Table A3: Compounds of formula IAa₃:(IAa₃)

Comp. No.	R ₃	L
A3.001	CF ₃	CH ₂
A3.002	CF ₂ H	CH ₂
A3.003	CF ₃	CH ₂
A3.004	CF ₃	CH ₂
A3.005	CF ₃	CH ₂
A3.006	CF ₃	CH ₂
A3.007	CF ₃	CH ₂
A3.008	CF ₃	CH ₂
A3.009	CF ₃	CH ₂
A3.010	CF ₃	CH ₂
A3.011	CF ₃	CH ₂
A3.012	CF ₃	CH ₂
A3.013	CF ₃	CH ₂

Phys.
data


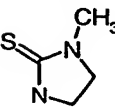
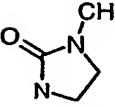
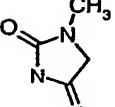
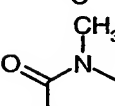
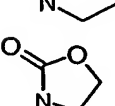
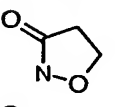
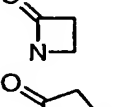
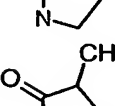
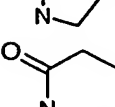
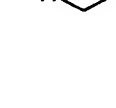
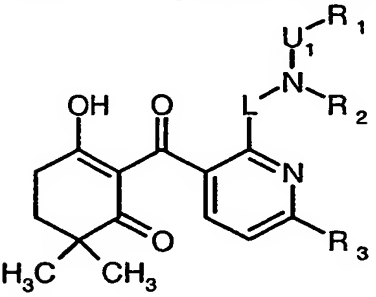
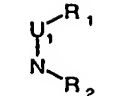
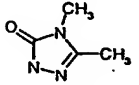
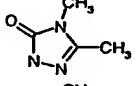
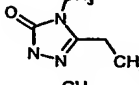
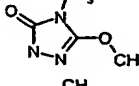
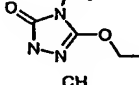
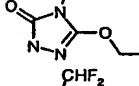
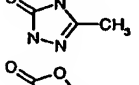
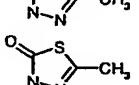
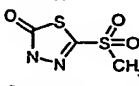
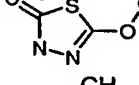
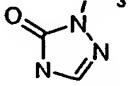
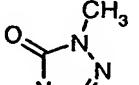
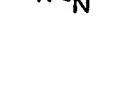
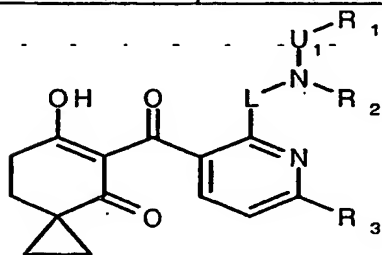
Comp. No.	R ₃	L		Phys. data
				
A3.014	CF ₃	CH ₂		
A3.015	CF ₃	CH ₂		
A3.016	CF ₃	CH ₂		
A3.017	CF ₃	CH ₂		
A3.018	CF ₃	CH ₂		
A3.019	CF ₃	CH ₂		
A3.020	CF ₃	CH ₂		
A3.021	CF ₃	CH ₂		
A3.022	CF ₃	CH ₂		
A3.023	CF ₃	CH ₂		

Table A4: Compounds of formula IAa₄:

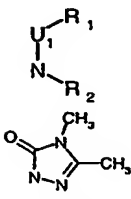
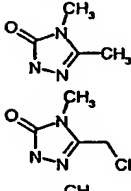
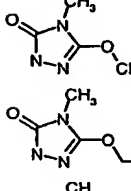
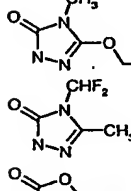
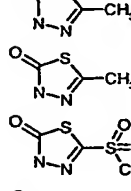
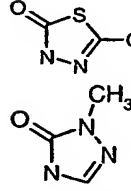
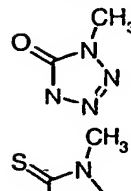
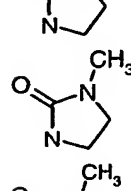
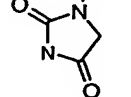

			(IAa ₄)	Phys. data
Comp. No.	R ₃	L		
A4.001	CF ₃	CH ₂		
A4.002	CF ₂ H	CH ₂		
A4.003	CF ₃	CH ₂		
A4.004	CF ₃	CH ₂		
A4.005	CF ₃	CH ₂		
A4.006	CF ₃	CH ₂		
A4.007	CF ₃	CH ₂		
A4.008	CF ₃	CH ₂		
A4.009	CF ₃	CH ₂		
A4.010	CF ₃	CH ₂		
A4.011	CF ₃	CH ₂		
A4.012	CF ₃	CH ₂		
A4.013	CF ₃	CH ₂		

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Comp. No.	R ₃	L		Phys. data
A4.014	CF ₃	CH ₂		
A4.015	CF ₃	CH ₂		
A4.016	CF ₃	CH ₂		
A4.017	CF ₃	CH ₂		
A4.018	CF ₃	CH ₂		
A4.019	CF ₃	CH ₂		
A4.020	CF ₃	CH ₂		
A4.021	CF ₃	CH ₂		
A4.022	CF ₃	CH ₂		
A4.023	CF ₃	CH ₂		

Table A5: Compounds of formula IAa₅:(IAa₅)

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Comp. No.	R ₃	L		Phys. data
A5.001	CF ₃	CH ₂		
A5.002	CF ₂ H	CH ₂		
A5.003	CF ₃	CH ₂		
A5.004	CF ₃	CH ₂		
A5.005	CF ₃	CH ₂		
A5.006	CF ₃	CH ₂		
A5.007	CF ₃	CH ₂		
A5.008	CF ₃	CH ₂		
A5.009	CF ₃	CH ₂		
A5.010	CF ₃	CH ₂		
A5.011	CF ₃	CH ₂		
A5.012	CF ₃	CH ₂		
A5.013	CF ₃	CH ₂		
A5.014	CF ₃	CH ₂		
A5.015	CF ₃	CH ₂		
A5.016	CF ₃	CH ₂		

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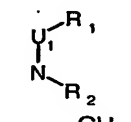
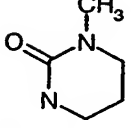
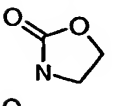
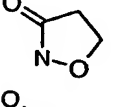
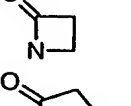
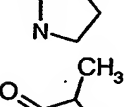
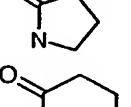
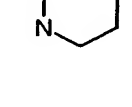
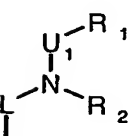
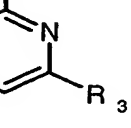
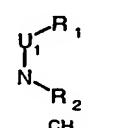
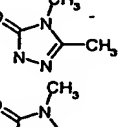
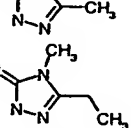
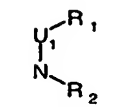
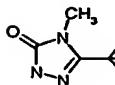
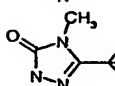
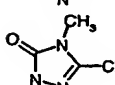
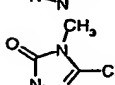
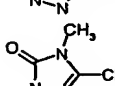
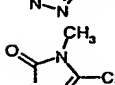
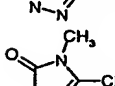
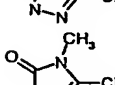
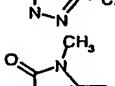
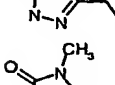
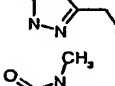
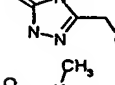
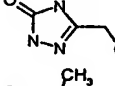
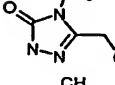
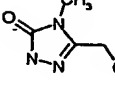
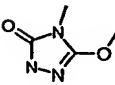
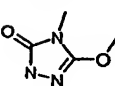
Comp. No.	R ₃	L		Phys. data
A5.017	CF ₃	CH ₂		
A5.018	CF ₃	CH ₂		
A5.019	CF ₃	CH ₂		
A5.020	CF ₃	CH ₂		
A5.021	CF ₃	CH ₂		
A5.022	CF ₃	CH ₂		
A5.023	CF ₃	CH ₂		


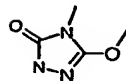
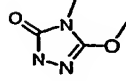
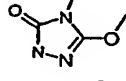
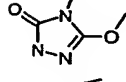
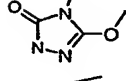
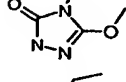
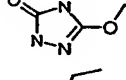
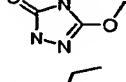
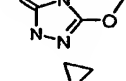
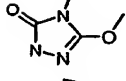
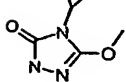
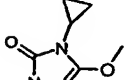
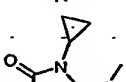

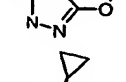
Table A6: Compounds of formula IAa₆:

Comp. No.	R ₃	L		Phys. data
A6.001	CF ₃	CH ₂		
A6.002	CF ₂ H	CH ₂		
A6.003	CF ₃	CH ₂		
A6.004	CF ₃	CH ₂ OCH ₂ CH ₂		


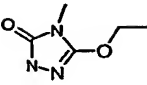
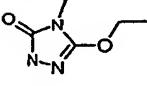
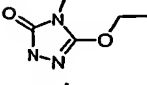
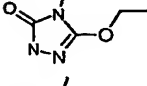
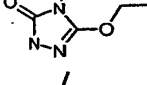
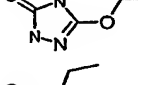
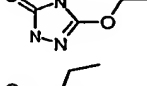
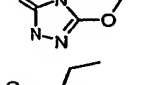
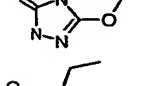
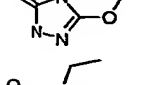
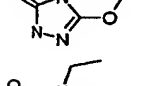
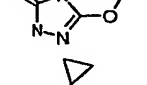
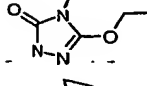
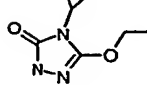
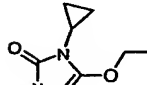
(IAa₆)

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
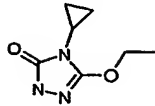
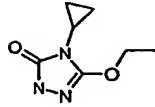
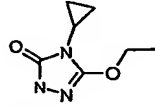
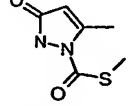
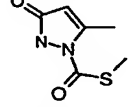
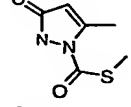
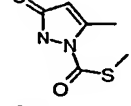
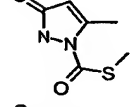
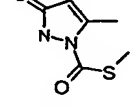
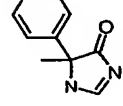
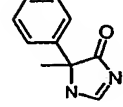
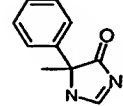
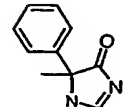
Comp. No.	R ₃	L		Phys. data
A6.005	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.006	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.007	CF ₃	CH ₂		
A6.008	CF ₂ Cl	CH ₂		
A6.009	CHF ₂	CH ₂		
A6.010	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.011	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.012	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.013	CF ₃	CH ₂		
A6.014	CF ₂ Cl	CH ₂		
A6.015	CHF ₂	CH ₂		
A6.016	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.017	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.018	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.019	CF ₃	CH ₂		
A6.020	CF ₂ Cl	CH ₂		
A6.021	CHF ₂	CH ₂		

Comp. No.	R ₃	L		Phys. data
A6.022	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.023	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.024	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.025	CF ₃	CH ₂		
A6.026	CF ₂ Cl	CH ₂		
A6.027	CHF ₂	CH ₂		
A6.028	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.029	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.030	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.031	CF ₃	CH ₂		
A6.032	CF ₂ Cl	CH ₂		
A6.033	CHF ₂	CH ₂		
A6.034	CF ₃	CH ₂ OCH ₂ CH ₂		
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A6.036	CHF ₂	CH ₂ OCH ₂ CH ₂		

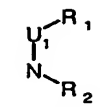
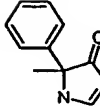
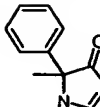
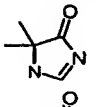
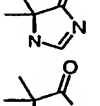
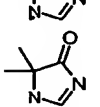
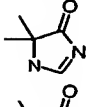
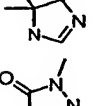
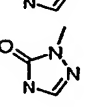
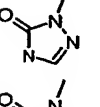
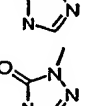
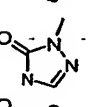
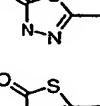
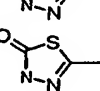


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
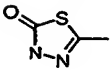
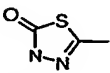
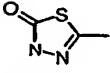
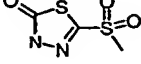
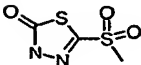
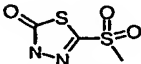
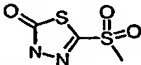
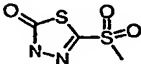
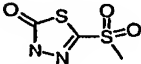
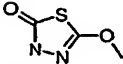
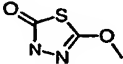
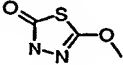
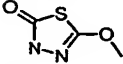
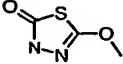
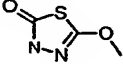
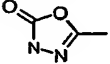
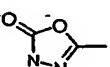
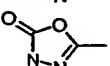
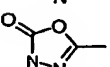
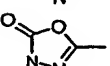
Comp. No.	R ₃	L		Phys. data
A6.037	CF ₃	CH ₂		
A6.038	CF ₂ Cl	CH ₂		
A6.039	CHF ₂	CH ₂		
A6.040	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.041	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.042	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.043	CF ₃	CH ₂		
A6.044	CF ₂ Cl	CH ₂		
A6.045	CHF ₂	CH ₂		
A6.046	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.047	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.048	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.049	CF ₃	CH ₂		
A6.050	CF ₂ Cl	CH ₂		
A6.051	CHF ₂	CH ₂		

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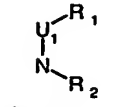
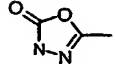
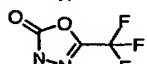
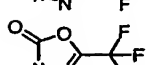
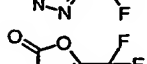
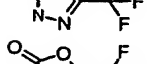
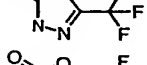
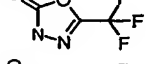






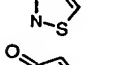
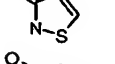
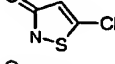
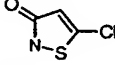
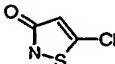
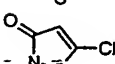


Comp. No.	R ₃	L		Phys. data
A6.052	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.053	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.054	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.055	CF ₃	CH ₂		resin
A6.056	CF ₂ Cl	CH ₂		
A6.057	CHF ₂	CH ₂		
A6.058	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.059	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.060	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.061	CF ₃	CH ₂		
A6.062	CF ₂ Cl	CH ₂		
A6.063	CHF ₂	CH ₂		
A6.064	CF ₃	CH ₂ OCH ₂ CH ₂		

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

















Comp. No.	R ₃	L		Phys. data
A6.065	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.066	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.067	CF ₃	CH ₂		
A6.068	CF ₂ Cl	CH ₂		
A6.069	CHF ₂	CH ₂		
A6.070	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.071	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.072	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.073	CF ₃	CH ₂		resin
A6.074	CF ₂ Cl	CH ₂		
A6.075	CHF ₂	CH ₂		
A6.076	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.077	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.078	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.079	CF ₃	CH ₂		amorphous crystals
A6.080	CF ₂ Cl	CH ₂		
A6.081	CHF ₂	CH ₂		

Comp. No.	R ₃	L		Phys. data
A6.082 (P3)	CF ₃	CH ₂ OCH ₂ CH ₂		resin
A6.083	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.084	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.085	CF ₃	CH ₂		amorphous crystals
A6.086	CF ₂ Cl	CH ₂		
A6.087	CHF ₂	CH ₂		
A6.088	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.089	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.090	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.091	CF ₃	CH ₂		resin
A6.092	CF ₂ Cl	CH ₂		
A6.093	CHF ₂	CH ₂		
A6.094	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.095	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.096	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.097	CF ₃	CH ₂		amorphous crystals
A6.098	CF ₂ Cl	CH ₂		
A6.099	CHF ₂	CH ₂		
A6.100	CF ₃	CH ₂ OCH ₂ CH ₂		resin
A6.101	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

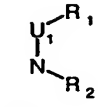











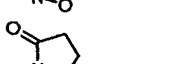
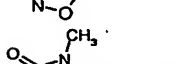
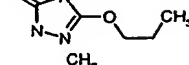
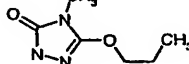
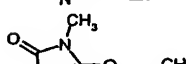
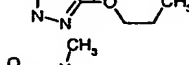
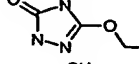
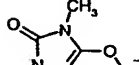
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Comp. No.	R ₃	L		Phys. data
A6.102	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.103	CF ₃	CH ₂		
A6.104	CF ₂ Cl	CH ₂		
A6.105	CHF ₂	CH ₂		
A6.106	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.107	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.108	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.109	CF ₃	CH ₂		
A6.110	CF ₂ Cl	CH ₂		
A6.111	CHF ₂	CH ₂		
A6.112	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.113	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.114	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.115	CF ₃	CH ₂		
A6.116	CF ₂ Cl	CH ₂		
A6.117	CHF ₂	CH ₂		
A6.118	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.119	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.120	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.121	CF ₃	CH ₂		
A6.122	CF ₂ Cl	CH ₂		

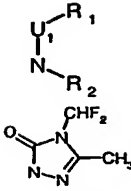
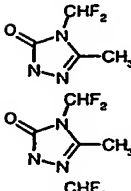
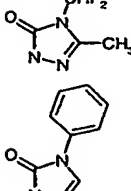
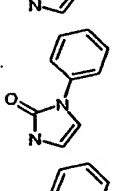
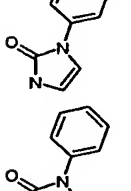
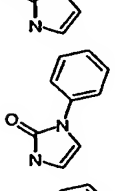
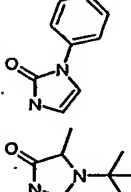
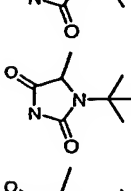
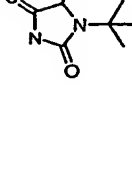

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Comp. No.	R ₃	L		Phys. data
A6.123	CHF ₂	CH ₂		
A6.124	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.125	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.126	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.127	CF ₃	CH ₂		
A6.128	CF ₂ Cl	CH ₂		
A6.129	CHF ₂	CH ₂		
A6.130	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.131	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.132	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.133	CF ₃	CH ₂		
A6.134	CF ₂ Cl	CH ₂		
A6.135	CHF ₂	CH ₂		
A6.136	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.137	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.138	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.139	CF ₃	CH ₂		

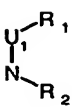
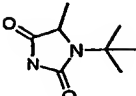
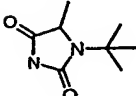
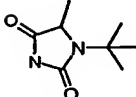
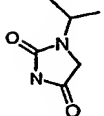
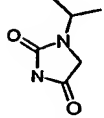
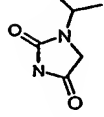
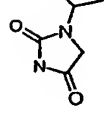
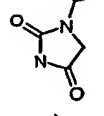
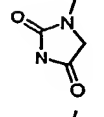
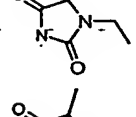
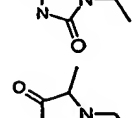
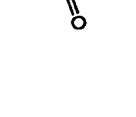
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Comp. No.	R ₃	L		Phys. data
A6.140	CF ₂ Cl	CH ₂		
A6.141	CHF ₂	CH ₂		
A6.142	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.143	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.144	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.145	CF ₃	CH ₂		
A6.146	CF ₂ Cl	CH ₂		
A6.147	CHF ₂	CH ₂		
A6.148	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.149	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.150	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.151	CF ₃	CH ₂		
A6.152	CF ₂ Cl	CH ₂		
A6.153	CHF ₂	CH ₂		
A6.154	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.155	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.156	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.157	CF ₃	CH ₂		
A6.158	CF ₂ Cl	CH ₂		

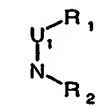
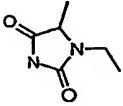
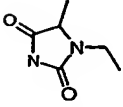
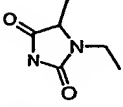
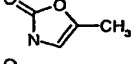
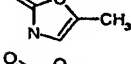
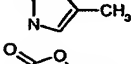
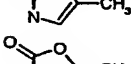
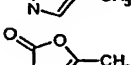
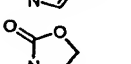






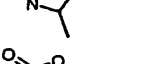
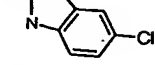
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Comp. No.	R ₃	L		Phys. data
A6.159	CHF ₂	CH ₂		
A6.160	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.161	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.162	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.163	CF ₃	CH ₂		
A6.164	CF ₂ Cl	CH ₂		
A6.165	CHF ₂	CH ₂		
A6.166	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.167	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.168	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.169	CF ₃	CH ₂		
A6.170	CF ₂ Cl	CH ₂		
A6.171	CHF ₂	CH ₂		

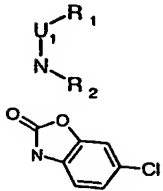
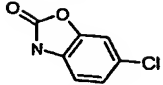






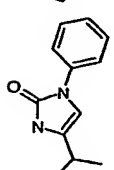
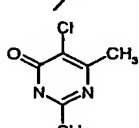
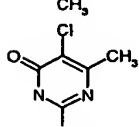
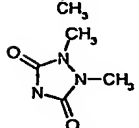
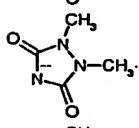



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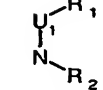
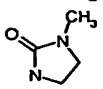
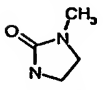
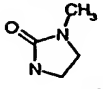
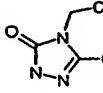
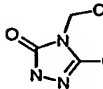
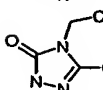
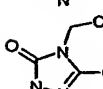
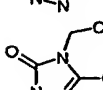
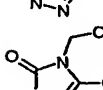
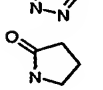
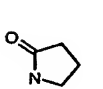
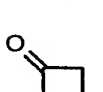
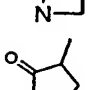
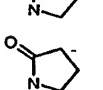
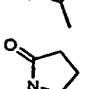
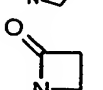
Comp. No.	R ₃	L		Phys. data
A6.172	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.173	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.174	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.175	CF ₃	CH ₂		
A6.176	CF ₂ Cl	CH ₂		
A6.177	CHF ₂	CH ₂		
A6.178	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.179	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.180	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.181	CF ₃	CH ₂		m.p.:134°C
A6.182	CF ₂ Cl	CH ₂		
A6.183	CHF ₂	CH ₂		

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Comp. No.	R ₃	L		Phys. data
A6.184	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.185	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.186	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.187	CF ₃	CH ₂		
A6.188	CF ₂ Cl	CH ₂		
A6.189	CHF ₂	CH ₂		
A6.190	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.191	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.192	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.193	CF ₃	CH ₂		
A6.194	CF ₂ Cl	CH ₂		
A6.195	CHF ₂	CH ₂		
A6.196	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.197	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.198	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.199	CF ₃	CH ₂		
A6.200	CF ₂ Cl	CH ₂		

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Comp. No.	R ₃	L		Phys. data
A6.201	CHF ₂	CH ₂		
A6.202	CF ₃	CH ₂		
A6.203	CF ₂ Cl	CH ₂		
A6.204	CHF ₂	CH ₂		
A6.205	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.206	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.207	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.208	CF ₃	CH ₂		resin
A6.209	CF ₃	CH ₂		
A6.210	CHF ₂	CH ₂		
A6.211	CF ₃	CH ₂		
A6.212	CHF ₂	CH ₂		
A6.213	CF ₃	CH ₂		
A6.214	CF ₂ Cl	CH ₂		
A6.215	CHF ₂	CH ₂		

Comp. No.	R ₃	L		Phys. data
A6.216	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.217	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A6.218	CHF ₂	CH ₂ OCH ₂ CH ₂		
A6.219	CH ₂	CF ₃		
A6.220	CH ₂	CF ₂ Cl		
A6.221	CH ₂	CHF ₂		
A6.222	CH ₂ OCH ₂ CH ₂	CF ₃		
A6.223	CH ₂ OCH ₂ CH ₂	CF ₂ Cl		
A6.224	CH ₂ OCH ₂ CH ₂	CHF ₂		
A6.225	CF ₃	CH ₂		
A6.226	CF ₃	CH ₂ OCH ₂ CH ₂		
A6.227	CF ₃	CH ₂		
A6.228	CF ₃	CH ₂		
A6.229	CF ₃	CH ₂		
A6.230	CClF ₂	CH ₂		
A6.231	CClF ₂	CH ₂		
A6.232	CClF ₂	CH ₂		

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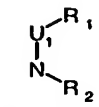





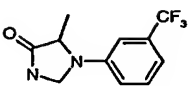
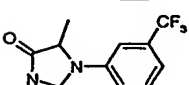
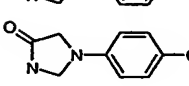
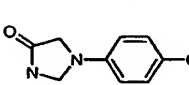
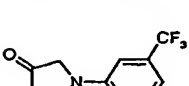
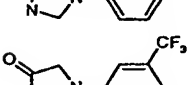
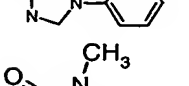
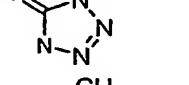
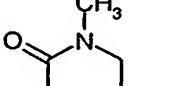
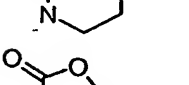
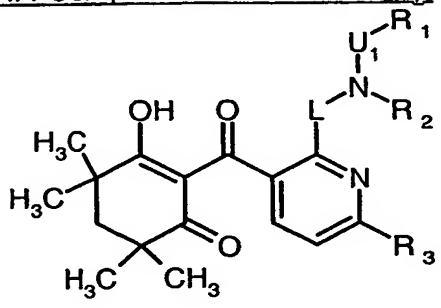
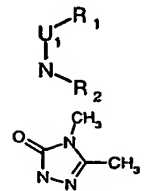
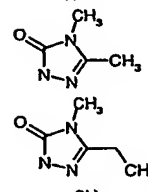
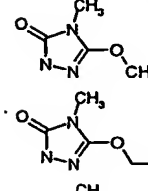
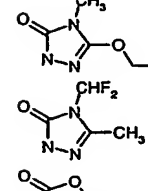
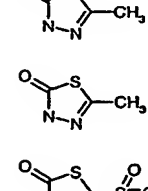
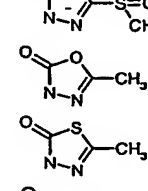
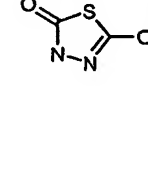

Comp. No.	R ₃	L		Phys. data
A6.233	CClF ₂			
A6.234	CHF ₂			
A6.235	CHF ₂			
A6.236	CHF ₂			
A6.237	CHF ₂			
A6.238	CF ₃	CH ₂		resin
A6.239	CHF ₂	CH ₂		
A6.240	CF ₃	CH ₂		m.p.: 113°C
A6.241	CHF ₂	CH ₂		
A6.242	CF ₃	CH ₂		resin
A6.243	CHF ₂	CH ₂		
A6.244	CF ₃	CH ₂		
A6.245	CF ₃	CH ₂		
A6.246	CF ₃	CH ₂		
A6.247	CF ₃	CH ₂ OCH ₂ CH ₂		resin; p=1 (N-oxide)

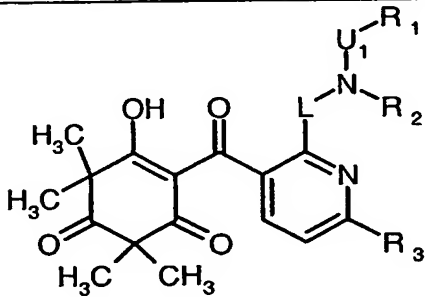
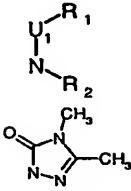
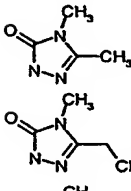
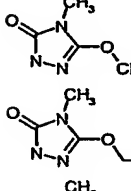
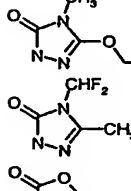
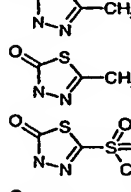
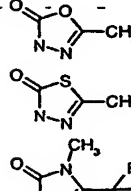
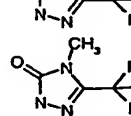

Table A7: Compounds of formula IAa₇:

 (IAa ₇)			
Comp. No.	R ₃	L	Phys. data
A7.001	CF ₃	CH ₂	       
A7.002	CF ₂ H	CH ₂	
A7.003	CF ₃	CH ₂	
A7.004	CF ₃	CH ₂	
A7.005	CF ₃	CH ₂	
A7.006	CF ₃	CH ₂	
A7.007	CF ₃	CH ₂	
A7.008	CF ₃	CH ₂	
A7.009	CF ₃	CH ₂	
A7.010	CF ₃	CH ₂	
A7.011	CF ₃	CH ₂ OCH ₂ CH ₂	
A7.012	CF ₃	CH ₂ OCH ₂ CH ₂	
A7.013	CF ₃	CH ₂	
			amorphous crystals amorphous crystals

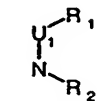
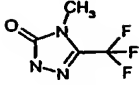
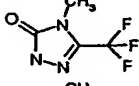
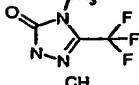
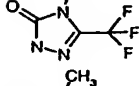
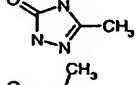
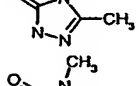
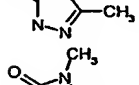
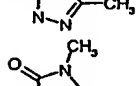
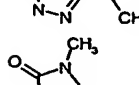
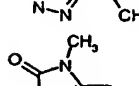
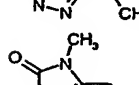
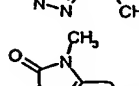
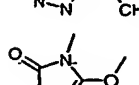
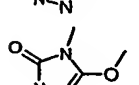
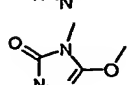
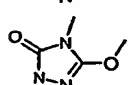

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Comp. No.	R ₃	L		Phys. data
A7.014	CF ₃	CH ₂		
A7.015	CF ₃	CH ₂		
A7.016	CF ₃	CH ₂		
A7.017	CF ₃	CH ₂		
A7.018	CF ₃	CH ₂		
A7.019	CF ₃	CH ₂		
A7.020	CF ₃	CH ₂		
A7.021	CF ₃	CH ₂		
A7.022	CF ₃	CH ₂		
A7.023	CF ₃	CH ₂		
A7.024	CF ₃	CH ₂		
A7.025	CF ₃	CH ₂		
A7.026	CF ₃	CH ₂		resin; p=1 (N-oxide)

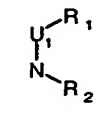
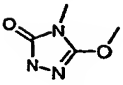
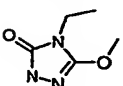
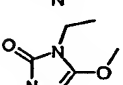
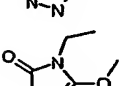
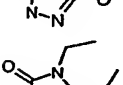
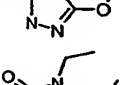
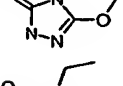
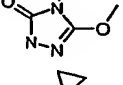
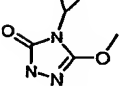
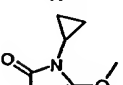
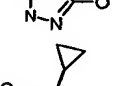
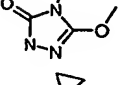
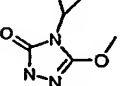
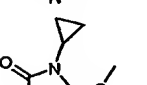
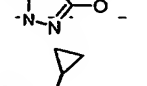
Table A8: Compounds of formula IAa₈:

			
Comp. No.	R ₃	L	(IAa ₈)
A8.001	CF ₃	CH ₂	
A8.002	CF ₂ H	CH ₂	
A8.003	CF ₃	CH ₂	
A8.004	CF ₃	CH ₂	
A8.005	CF ₃	CH ₂	
A8.006	CF ₃	CH ₂	
A8.007	CF ₃	CH ₂	
A8.008	CF ₃	CH ₂	
A8.009	CF ₃	CH ₂	
A8.010	CF ₃	CH ₂	
A8.011	CF ₃	CH ₂ OCH ₂ CH ₂	
A8.012	CF ₃	CH ₂ OCH ₂ CH ₂	
A8.013	CF ₃	CH ₂	
A8.014	CF ₂ Cl	CH ₂	
			Phys. data
			solid


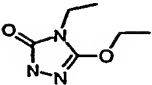
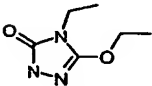
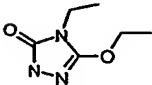
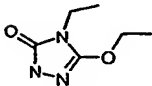
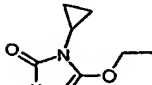
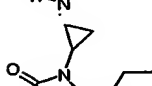
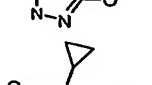
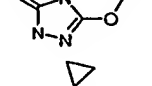
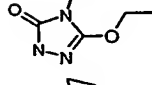
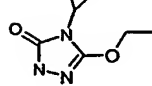
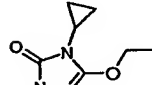
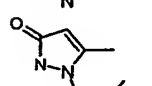
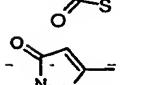
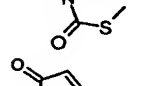
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Comp. No.	R ₃	L		Phys. data
A8.015	CF ₂ H	CH ₂		
A8.016	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.017	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.018	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.019	CF ₂ Cl	CH ₂		
A8.020	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.021	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.022	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.023	CF ₂ Cl	CH ₂		
A8.024	CHF ₂	CH ₂		
A8.025	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.026	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.027	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.028	CF ₂ Cl	CH ₂		
A8.029	CHF ₂	CH ₂		
A8.030	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.031	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

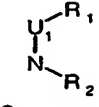
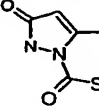
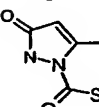
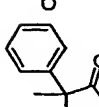
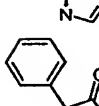
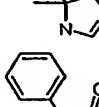
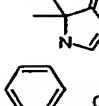
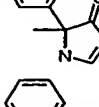
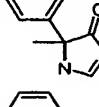
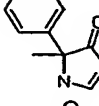
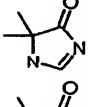
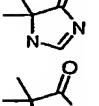
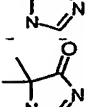
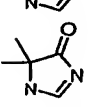

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Comp. No.	R ₃	L		Phys. data
A8.032	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.033	CF ₃	CH ₂		
A8.034	CF ₂ Cl	CH ₂		
A8.035	CHF ₂	CH ₂		
A8.036	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.037	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.038	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.039	CF ₃	CH ₂		
A8.040	CF ₂ Cl	CH ₂		
A8.041	CHF ₂	CH ₂		
A8.042	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.043	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.044	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.050	CF ₃	CH ₂		
A8.051	CF ₂ Cl	CH ₂		








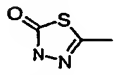
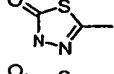
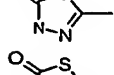
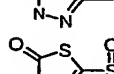
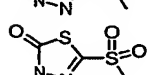
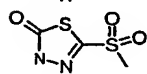
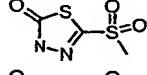
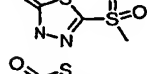
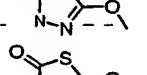
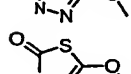
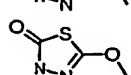
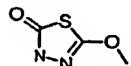


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Comp. No.	R ₃	L		Phys. data
A8.052	CHF ₂	CH ₂		
A8.053	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.054	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.055	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.056	CF ₃	CH ₂		
A8.057	CF ₂ Cl	CH ₂		
A8.058	CHF ₂	CH ₂		
A8.059	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.060	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.061	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.062	CF ₃	CH ₂		resin
A8.063	CF ₂ Cl	CH ₂		
A8.064	CHF ₂	CH ₂		
A8.065	CF ₃	CH ₂ OCH ₂ CH ₂		


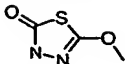
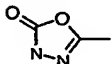
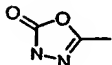
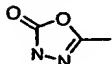
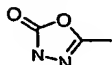
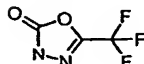
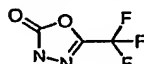
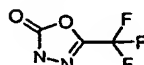
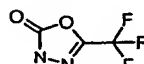
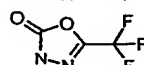
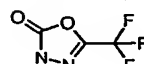






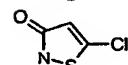
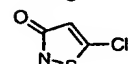
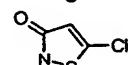
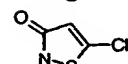
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Comp. No.	R ₃	L		Phys. data
A8.066	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.067	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.068	CF ₃	CH ₂		
A8.069	CF ₂ Cl	CH ₂		
A8.070	CHF ₂	CH ₂		
A8.071	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.072	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.073	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.074	CF ₃	CH ₂		
A8.075	CF ₂ Cl	CH ₂		
A8.076	CHF ₂	CH ₂		
A8.077	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.078	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.079	CHF ₂	CH ₂ OCH ₂ CH ₂		

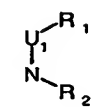
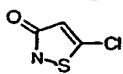
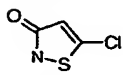






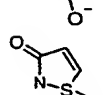
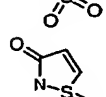
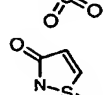
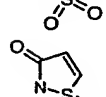
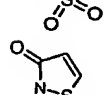
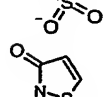



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Comp. No.	R ₃	L		Phys. data
A8.080	CF ₃	CH ₂		resin
A8.081	CF ₂ Cl	CH ₂		
A8.082	CHF ₂	CH ₂		
A8.083	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.084	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.085	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.086	CF ₂ Cl	CH ₂		
A8.087	CHF ₂	CH ₂		
A8.088	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.089	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.090	CF ₂ Cl	CH ₂		
A8.091	CHF ₂	CH ₂		
A8.092	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.093	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.094	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.095	CF ₃	CH ₂		resin
A8.096	CF ₂ Cl	CH ₂		
A8.097	CHF ₂	CH ₂		
A8.098	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.099	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

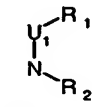



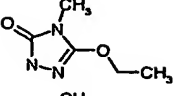
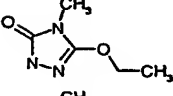
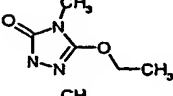
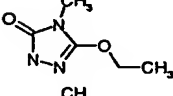
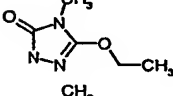
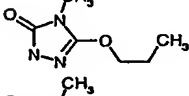
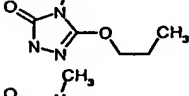
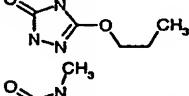
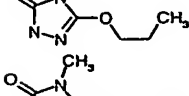
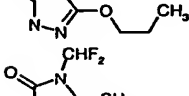
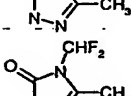
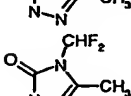
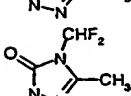
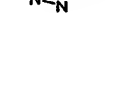
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Comp. No.	R ₃	L		Phys. data
A8.100	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.101	CF ₂ Cl	CH ₂		
A8.102	CHF ₂	CH ₂		
A8.103	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.104	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.105	CF ₃	CH ₂		
A8.106	CF ₂ Cl	CH ₂		
A8.107	CHF ₂	CH ₂		
A8.108	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.109	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.110	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.111	CF ₃	CH ₂		
A8.112	CF ₂ Cl	CH ₂		
A8.113	CHF ₂	CH ₂		
A8.114	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.115	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.116	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.117	CF ₃	CH ₂		
A8.118	CF ₂ Cl	CH ₂		
A8.119	CHF ₂	CH ₂		
A8.120	CF ₃	CH ₂ OCH ₂ CH ₂		

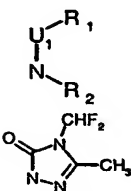
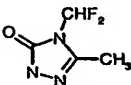
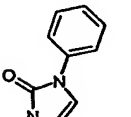
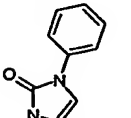
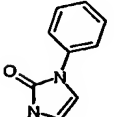
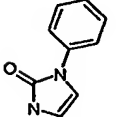
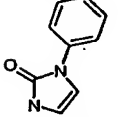
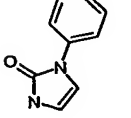
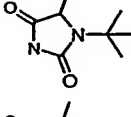
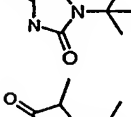
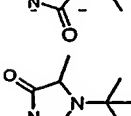
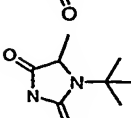

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Comp. No.	R ₃	L		Phys. data
A8.121	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.122	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.123	CF ₃	CH ₂		
A8.124	CF ₂ Cl	CH ₂		
A8.125	CHF ₂	CH ₂		
A8.126	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.127	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.128	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.129	CF ₃	CH ₂		
A8.130	CF ₂ Cl	CH ₂		
A8.131	CHF ₂	CH ₂		
A8.132	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.133	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.134	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.135	CF ₃	CH ₂		
A8.136	CF ₂ Cl	CH ₂		
A8.137	CHF ₂	CH ₂		

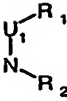
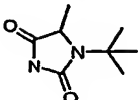
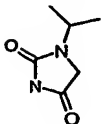
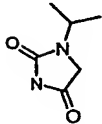
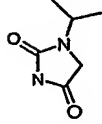
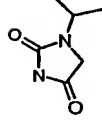
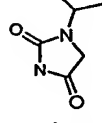
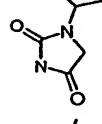
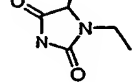
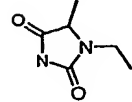
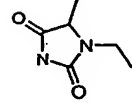
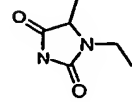
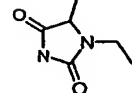
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Comp. No.	R ₃	L		Phys. data
A8.138	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.139	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.140	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.141	CF ₂ Cl	CH ₂		
A8.142	CHF ₂	CH ₂		
A8.143	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.144	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.145	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.146	CF ₂ Cl	CH ₂		
A8.147	CHF ₂	CH ₂		
A8.148	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.149	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.150	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.151	CF ₂ Cl	CH ₂		
A8.152	CHF ₂	CH ₂		
A8.153	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.154	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

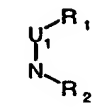
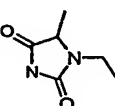
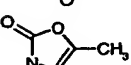
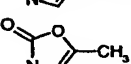
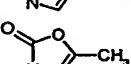
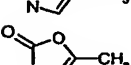
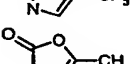
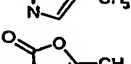
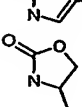
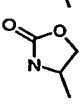
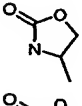
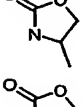
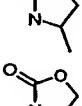
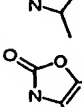
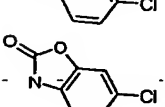
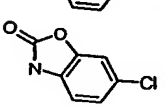
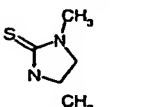


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Comp. No.	R ₃	L		Phys. data
A8.155	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.156	CF ₃	CH ₂		
A8.157	CF ₂ Cl	CH ₂		
A8.158	CHF ₂	CH ₂		
A8.159	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.160	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.161	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.162	CF ₃	CH ₂		
A8.163	CF ₂ Cl	CH ₂		
A8.164	CHF ₂	CH ₂		
A8.165	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.166	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

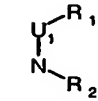







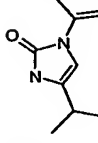









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Comp. No.	R ₃	L		Phys. data
A8.167	CHF ₂	CH ₂ OCH ₂ CH ₂		m.p.: 65°C
A8.168	CF ₃	CH ₂		
A8.169	CF ₂ Cl	CH ₂		
A8.170	CHF ₂	CH ₂		
A8.171	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.172	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		resin
A8.173	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.174	CF ₃	CH ₂		
A8.175	CF ₂ Cl	CH ₂		
A8.176	CHF ₂	CH ₂		
A8.177	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.178	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

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Comp. No.	R ₃	L		Phys. data
A8.179	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.180	CF ₃	CH ₂		
A8.181	CF ₂ Cl	CH ₂		
A8.182	CHF ₂	CH ₂		
A8.183	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.184	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.185	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.186	CF ₃	CH ₂		
A8.187	CF ₂ Cl	CH ₂		
A8.188	CHF ₂	CH ₂		
A8.189	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.190	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.191	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.192	CF ₃	CH ₂		
A8.193	CF ₂ Cl	CH ₂		
A8.194	CHF ₂	CH ₂		
A8.195	CF ₃	CH ₂		
A8.196	CF ₂ Cl	CH ₂		

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Comp. No.	R ₃	L		Phys. data
A8.197	CHF ₂	CH ₂		
A8.198	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.199	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
A8.200	CHF ₂	CH ₂ OCH ₂ CH ₂		
A8.201	CF ₃	CH ₂		
A8.202	CF ₂ Cl	CH ₂		
A8.203	CHF ₂	CH ₂		
A8.204	CF ₃	CH ₂		resin
A8.205	CF ₃	CH ₂		
A8.206	CF ₃	CH ₂ OCH ₂ CH ₂		
A8.207	CF ₃	CH ₂		
A8.208	CF ₃	CH ₂		
A8.209	CF ₃	CH ₂		
A8.210	CClF ₂	CH ₂		
A8.211	CClF ₂	CH ₂		
A8.212	CClF ₂	CH ₂		
A8.213	CClF ₂	CH ₂		

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




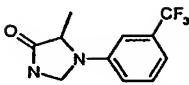
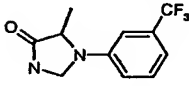
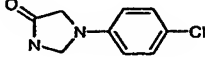
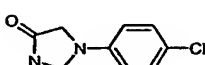
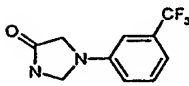
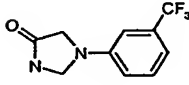
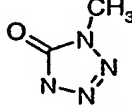
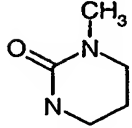
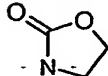
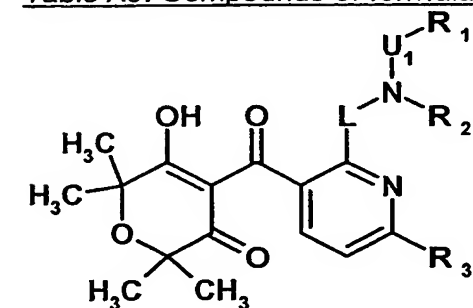
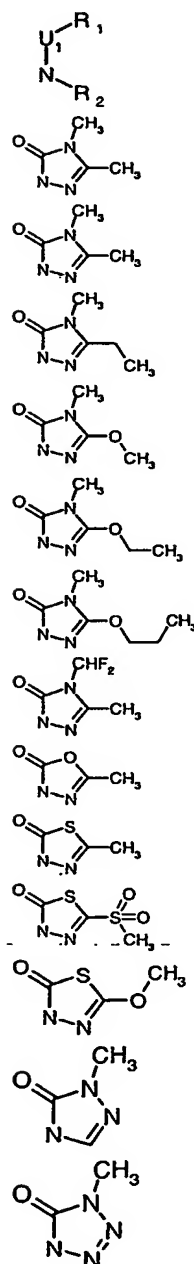
Comp. No.	R ₃	L		Phys. data
A8.214	CHF ₂	CH ₂		
A8.215	CHF ₂	CH ₂		
A8.216	CHF ₂	CH ₂		
A8.217	CHF ₂	CH ₂		
A8.218	CF ₃	CH ₂		resin
A8.219	CHF ₂	CH ₂		
A8.220	CF ₃	CH ₂		m.p.: 69°C
A8.221	CHF ₂	CH ₂		
A8.222	CF ₃	CH ₂		
A8.223	CHF ₂	CH ₂		
A8.224	CF ₃	CH ₂		
A8.225	CF ₃	CH ₂		
A8.226	CF ₃	CH ₂		

Table A9: Compounds of formula IAa₉:(IAa₉)

Comp. No.	R ₃	L
A9.001	CF ₃	CH ₂
A9.002	CF ₂ H	CH ₂
A9.003	CF ₃	CH ₂
A9.004	CF ₃	CH ₂
A9.005	CF ₃	CH ₂
A9.006	CF ₃	CH ₂
A9.007	CF ₃	CH ₂
A9.008	CF ₃	CH ₂
A9.009	CF ₃	CH ₂
A9.010	CF ₃	CH ₂
A9.011	CF ₃	CH ₂
A9.012	CF ₃	CH ₂
A9.013	CF ₃	CH ₂

Phys.
data

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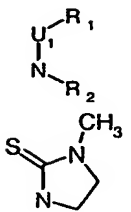
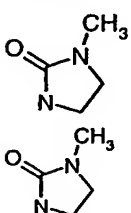
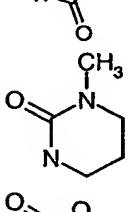
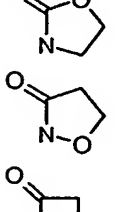
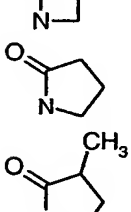
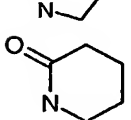



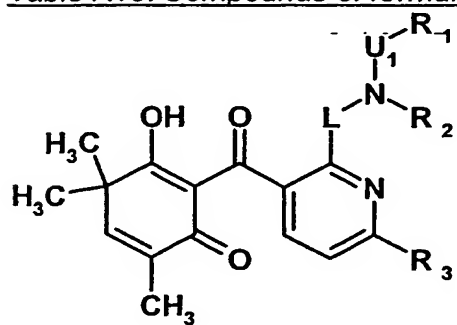
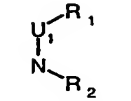
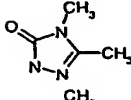
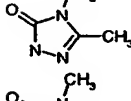
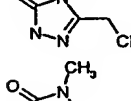
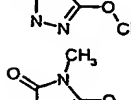
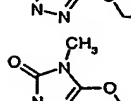
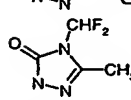
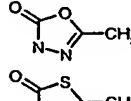
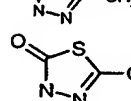
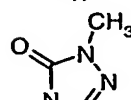
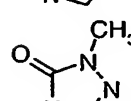
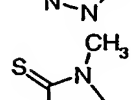
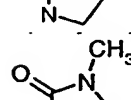
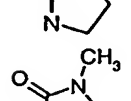
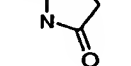
Comp. No.	R ₃	L		Phys. data
A9.014	CF ₃	CH ₂		
A9.015	CF ₃	CH ₂		
A9.016	CF ₃	CH ₂		
A9.017	CF ₃	CH ₂		
A9.018	CF ₃	CH ₂		
A9.019	CF ₃	CH ₂		
A9.020	CF ₃	CH ₂		
A9.021	CF ₃	CH ₂		
A9.022	CF ₃	CH ₂		
A9.023	CF ₃	CH ₂		

Table A10: Compounds of formula IAa₁₀:(IAa₉)

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Comp. No.	R ₃	L		Phys. data
A10.001	CF ₃	CH ₂		
A10.002	CF ₂ H	CH ₂		
A10.003	CF ₃	CH ₂		
A10.004	CF ₃	CH ₂		
A10.005	CF ₃	CH ₂		
A10.006	CF ₃	CH ₂		
A10.007	CF ₃	CH ₂		
A10.008	CF ₃	CH ₂		
A10.009	CF ₃	CH ₂		
A10.010	CF ₃	CH ₂		
A10.011	CF ₃	CH ₂		
A10.012	CF ₃	CH ₂		
A10.013	CF ₃	CH ₂		
A10.014	CF ₃	CH ₂		
A10.015	CF ₃	CH ₂		

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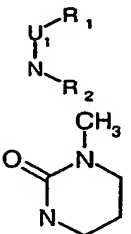
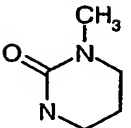
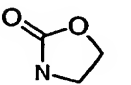
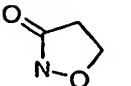
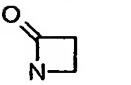
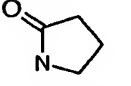
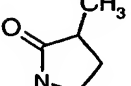
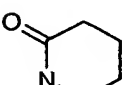
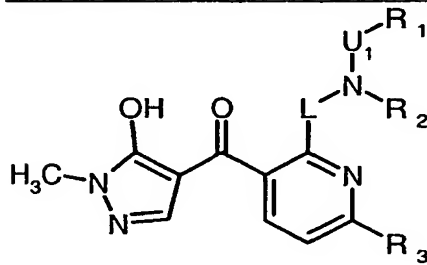
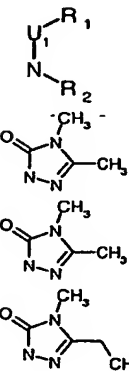
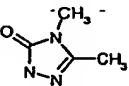
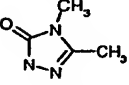
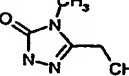
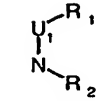
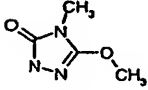
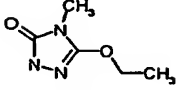
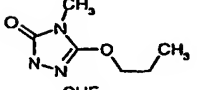
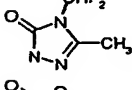
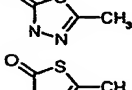
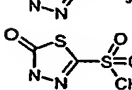
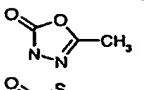
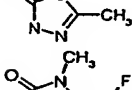
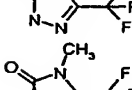
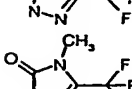
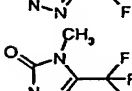
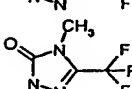
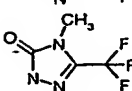
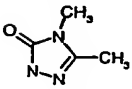
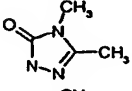
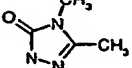


Comp. No.	R ₃	L		Phys. data
A10.016	CF ₃	CH ₂		
A10.017	CF ₃	CH ₂		
A10.018	CF ₃	CH ₂		
A10.019	CF ₃	CH ₂		
A10.020	CF ₃	CH ₂		
A10.021	CF ₃	CH ₂		
A10.022	CF ₃	CH ₂		

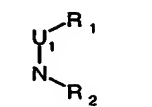
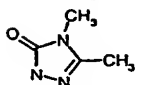
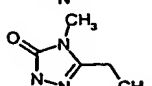
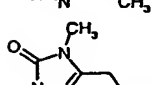
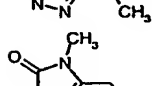
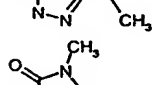
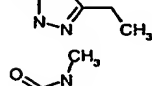
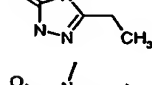
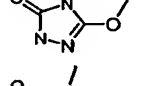
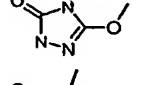
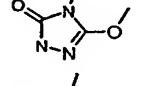
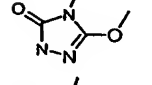
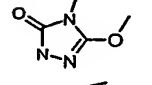
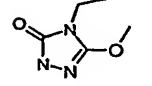
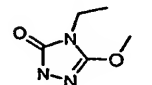
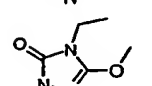
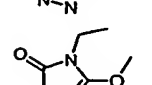
Table B1: Compounds of formula IAb₁:

				(IAb ₁)	
Comp. No.	R ₃	L		Phys. data	
B1.001	CF ₃	CH ₂		solid	
B1.002	CF ₂ H	CH ₂			
B1.003	CF ₃	CH ₂			

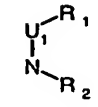
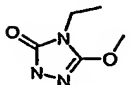
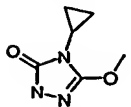
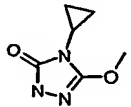
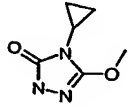
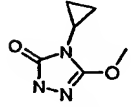
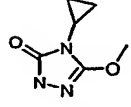
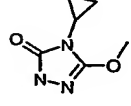
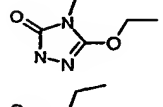
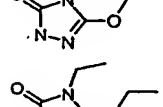
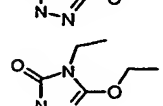
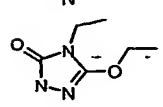
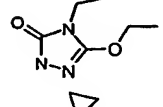
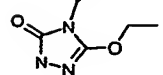

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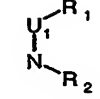
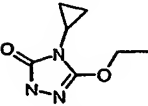
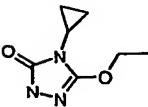
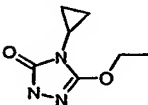
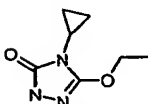
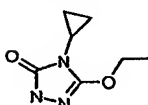
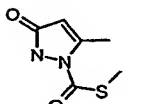
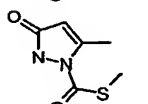
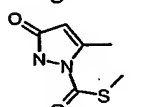
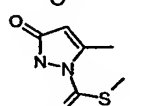
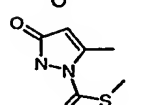
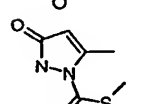
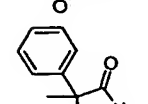
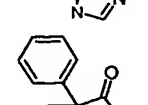
Comp. No.	R ₃	L		Phys. data
B1.004	CF ₃	CH ₂		solid
B1.005	CF ₃	CH ₂		solid
B1.006	CF ₃	CH ₂		
B1.007	CF ₃	CH ₂		
B1.008	CF ₃	CH ₂		m.p.: 173°C
B1.009	CF ₃	CH ₂		
B1.010	CF ₃	CH ₂		
B1.011	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.012	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.013	CF ₃	CH ₂		
B1.014	CF ₂ Cl	CH ₂		
B1.015	CF ₂ H	CH ₂		
B1.016	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.017	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.018	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.019	CF ₂ Cl	CH ₂		
B1.020	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.021	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

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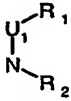
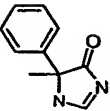
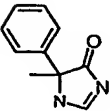
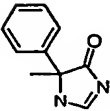
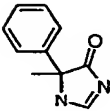
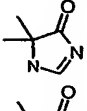
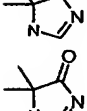
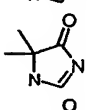
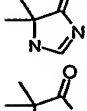
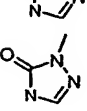
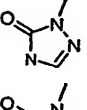
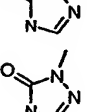
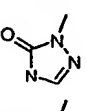
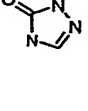


Comp. No.	R ₃	L		Phys. data
B1.022	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.023	CF ₂ Cl	CH ₂		
B1.024	CHF ₂	CH ₂		
B1.025	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.026	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.027	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.028	CF ₂ Cl	CH ₂		
B1.029	CHF ₂	CH ₂		
B1.030	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.031	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.032	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.033	CF ₃	CH ₂		solid
B1.034	CF ₂ Cl	CH ₂		
B1.035	CHF ₂	CH ₂		
B1.036	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.037	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

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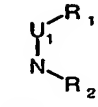





















Comp. No.	R ₃	L		Phys. data
B1.038	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.039	CF ₃	CH ₂		solid
B1.040	CF ₂ Cl	CH ₂		
B1.041	CHF ₂	CH ₂		
B1.042	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.043	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.044	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.050	CF ₃	CH ₂		solid
B1.051	CF ₂ Cl	CH ₂		
B1.052	CHF ₂	CH ₂		
B1.053	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.054	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.055	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.056	CF ₃	CH ₂		solid

Comp. No.	R ₃	L		Phys. data
				
B1.057	CF ₂ Cl	CH ₂		
B1.058	CHF ₂	CH ₂		
B1.059	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.060	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.061	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.062	CF ₃	CH ₂		m.p.: 173°C
B1.063	CF ₂ Cl	CH ₂		
B1.064	CHF ₂	CH ₂		
B1.065	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.066	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.067	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.068	CF ₃	CH ₂		
B1.069	CF ₂ Cl	CH ₂		

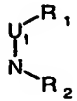
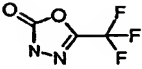
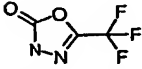
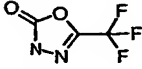
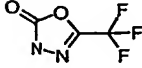
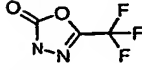
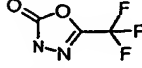






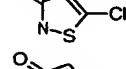
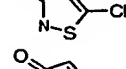
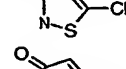
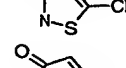
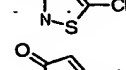
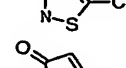


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Comp. No.	R ₃	L		Phys. data
B1.070	CHF ₂	CH ₂		
B1.071	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.072	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.073	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.074	CF ₃	CH ₂		
B1.075	CF ₂ Cl	CH ₂		
B1.076	CHF ₂	CH ₂		
B1.077	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.078	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.079	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.080	CF ₃	CH ₂		solid
B1.081	CF ₂ Cl	CH ₂		
B1.082	CHF ₂	CH ₂		
B1.083	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.084	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.085	CHF ₂	CH ₂ OCH ₂ CH ₂		

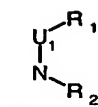
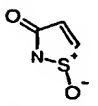
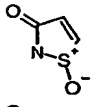
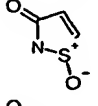
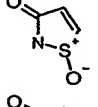
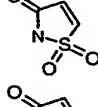
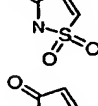
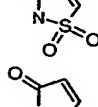
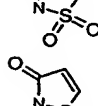
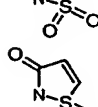
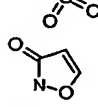
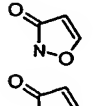
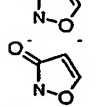
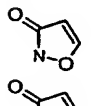
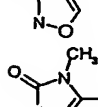
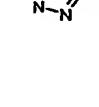


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Comp. No.	R ₃	L		Phys. data
B1.086	CF ₂ Cl	CH ₂		
B1.087	CHF ₂	CH ₂		
B1.088	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.089	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.090	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.091	CF ₂ Cl	CH ₂		
B1.092	CHF ₂	CH ₂		
B1.093	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.094	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.095	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.096	CF ₃	CH ₂		solid
B1.097	CF ₂ Cl	CH ₂		
B1.098	CHF ₂	CH ₂		
B1.099	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.100	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.101	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.102	CF ₂ Cl	CH ₂		
B1.103	CHF ₂	CH ₂		
B1.104	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.105	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.106	CHF ₂	CH ₂ OCH ₂ CH ₂		

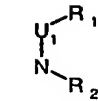
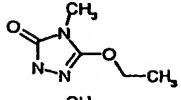
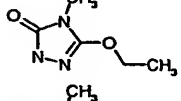
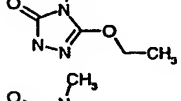
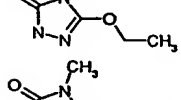
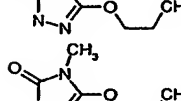
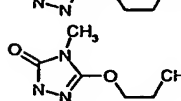
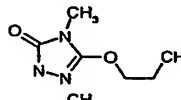
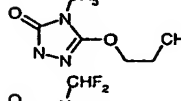
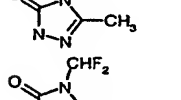
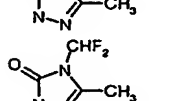
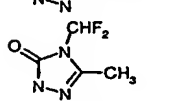
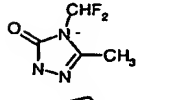
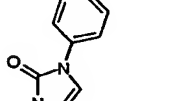
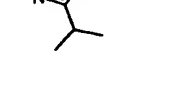

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Comp. No.	R ₃	L		Phys. data
B1.107	CF ₃	CH ₂		
B1.108	CF ₂ Cl	CH ₂		
B1.109	CHF ₂	CH ₂		
B1.110	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.111	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.112	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.113	CF ₃	CH ₂		
B1.114	CF ₂ Cl	CH ₂		
B1.115	CHF ₂	CH ₂		
B1.116	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.117	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.118	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.119	CF ₃	CH ₂		
B1.120	CF ₂ Cl	CH ₂		
B1.121	CHF ₂	CH ₂		
B1.122	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.123	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.124	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.125	CF ₃	CH ₂		
B1.126	CF ₂ Cl	CH ₂		


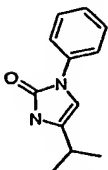
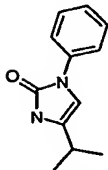
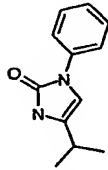
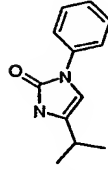
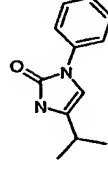
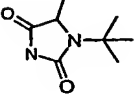
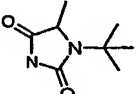
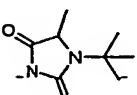
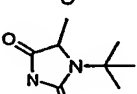
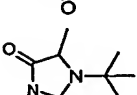
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Comp. No.	R ₃	L		Phys. data
B1.127	CHF ₂	CH ₂		
B1.128	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.129	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.130	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.131	CF ₃	CH ₂		
B1.132	CF ₂ Cl	CH ₂		
B1.133	CHF ₂	CH ₂		
B1.134	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.135	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.136	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.137	CF ₃	CH ₂		
B1.138	CF ₂ Cl	CH ₂		
B1.139	CHF ₂	CH ₂		
B1.140	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.141	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.142	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.143	CF ₂ Cl	CH ₂		

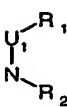
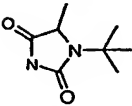
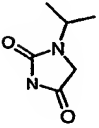
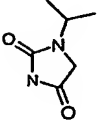
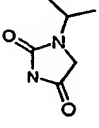
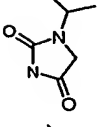
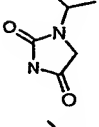
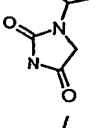
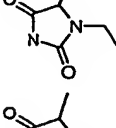
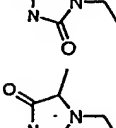
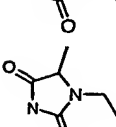
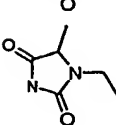

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Comp. No.	R ₃	L		Phys. data
B1.144	CHF ₂	CH ₂		
B1.145	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.146	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.147	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.148	CF ₂ Cl	CH ₂		
B1.149	CHF ₂	CH ₂		
B1.150	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.151	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.152	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.153	CF ₂ Cl	CH ₂		
B1.154	CHF ₂	CH ₂		
B1.155	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.156	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.157	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.158	CF ₃	CH ₂		resin

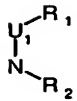
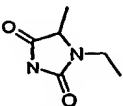
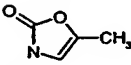
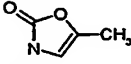
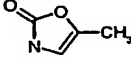
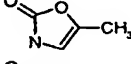
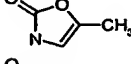
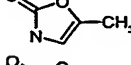






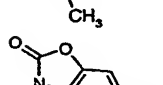
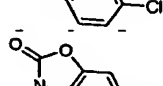
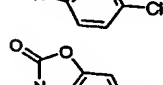

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Comp. No.	R ₃	L		Phys. data
B1.159	CF ₂ Cl	CH ₂		
B1.160	CHF ₂	CH ₂		
B1.161	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.162	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.163	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.164	CF ₃	CH ₂		
B1.165	CF ₂ Cl	CH ₂		
B1.166	CHF ₂	CH ₂		
B1.167	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.168	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

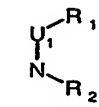








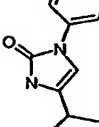
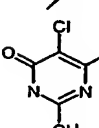
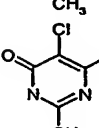
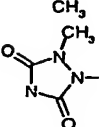
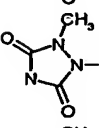


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Comp. No.	R ₃	L		Phys. data
B1.169	CHF ₂	CH ₂ OCH ₂ CH ₂		m.p.: 171°C
B1.170	CF ₃	CH ₂		
B1.171	CF ₂ Cl	CH ₂		
B1.172	CHF ₂	CH ₂		
B1.173	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.174	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		solid
B1.175	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.176	CF ₃	CH ₂		
B1.177	CF ₂ Cl	CH ₂		
B1.178	CHF ₂	CH ₂		
B1.179	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.180	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		

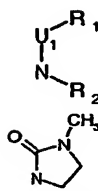

















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Comp. No.	R ₃	L		Phys. data
B1.181	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.182	CF ₃	CH ₂		
B1.183	CF ₂ Cl	CH ₂		
B1.184	CHF ₂	CH ₂		
B1.185	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.186	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.187	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.188	CF ₃	CH ₂		solid
B1.189	CF ₂ Cl	CH ₂		
B1.190	CHF ₂	CH ₂		
B1.191	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.192	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.193	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.194	CF ₃	CH ₂		solid
B1.195	CF ₂ Cl	CH ₂		
B1.196	CHF ₂	CH ₂		
B1.197	CF ₃	CH ₂		

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Comp. No.	R ₃	L		Phys. data
B1.198	CF ₂ Cl	CH ₂		
B1.199	CHF ₂	CH ₂		
B1.200	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.201	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.202	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.203	CF ₃	CH ₂		
B1.204	CF ₂ Cl	CH ₂		
B1.205	CHF ₂	CH ₂		
B1.206	CF ₃	CH ₂		
B1.207	CF ₃	CH ₂		
B1.208	CHF ₂	CH ₂		
B1.209	CF ₃	CH ₂		
B1.210	CHF ₂	CH ₂		
B1.211	CF ₃	CH ₂		solid
B1.212	CF ₂ Cl	CH ₂		

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Comp. No.	R ₃	L		Phys. data
B1.213	CHF ₂	CH ₂		
B1.214	CF ₃	CH ₂ OCH ₂ CH ₂		
B1.215	CF ₂ Cl	CH ₂ OCH ₂ CH ₂		
B1.216	CHF ₂	CH ₂ OCH ₂ CH ₂		
B1.217	CH ₂	CF ₃		
B1.218	CH ₂	CF ₂ Cl		
B1.219	CH ₂	CHF ₂		
B1.220	CH ₂ OCH ₂ CH ₂	CF ₃		
B1.221	CH ₂ OCH ₂ CH ₂	CF ₂ Cl		
B1.222	CH ₂ OCH ₂ CH ₂	CHF ₂		
B1.223	CF ₃	CH ₂		solid
B1.224	CF ₃	CH ₂ OCH ₂ CH ₂		resin
B1.225	CF ₃	CH ₂		solid
B1.226	CF ₃	CH ₂		solid
B1.227	CF ₃	CH ₂		solid
B1.228	CClF ₂	CH ₂		
B1.229	CClF ₂	CH ₂		

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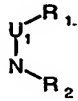






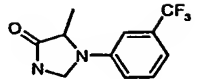
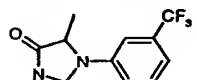
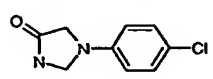
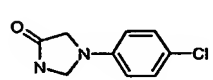
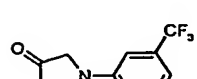
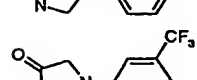
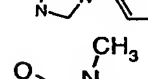
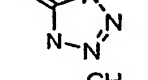
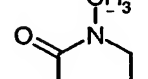
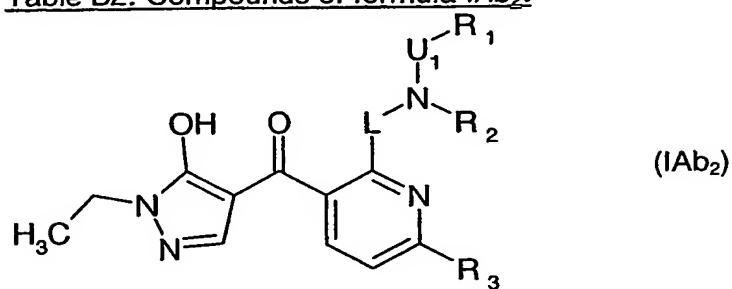
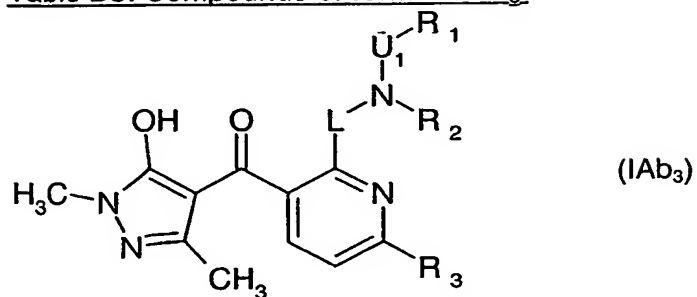
Comp. No.	R ₃	L		Phys. data
B1.230	CClF ₂	CH ₂		
B1.231	CClF ₂	CH ₂		
B1.232	CHF ₂	CH ₂		
B1.233	CHF ₂	CH ₂		
B1.234	CHF ₂	CH ₂		
B1.235	CHF ₂	CH ₂		
B1.236	CF ₃	CH ₂		resin
B1.237	CHF ₂	CH ₂		
B1.238	CF ₃	CH ₂		solid
B1.239	CHF ₂	CH ₂		
B1.240	CF ₃	CH ₂		m.p.: 192°C
B1.241	CHF ₂	CH ₂		
B1.242	CF ₃	CH ₂		
B1.243	CF ₃	CH ₂		
B1.244	CF ₃	CH ₂		

Table B2: Compounds of formula IAb₂:

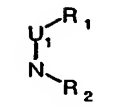
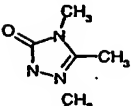
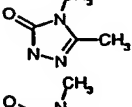
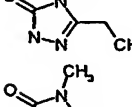
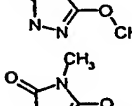
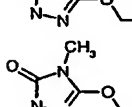
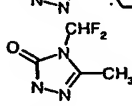
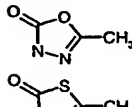
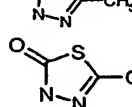
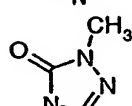
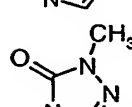
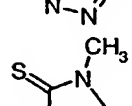
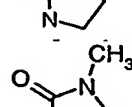
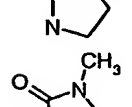
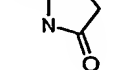
Comp. No.	R ₃	L		Phys. data
B2.001	CF ₃	CH ₂		
B2.002	CF ₂ H	CH ₂		
B2.003	CF ₃	CH ₂		
B2.004	CF ₃	CH ₂		
B2.005	CF ₃	CH ₂		
B2.006	CF ₃	CH ₂		
B2.007	CF ₃	CH ₂		
B2.008	CF ₃	CH ₂		
B2.009	CF ₃	CH ₂		
B2.010	CF ₃	CH ₂		
B2.011	CF ₃	CH ₂		
B2.012	CF ₃	CH ₂		
B2.013	CF ₃	CH ₂		

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Comp. No.	R ₃	L		Phys. data
B2.014	CF ₃	CH ₂		
B2.015	CF ₃	CH ₂		
B2.016	CF ₃	CH ₂		
B2.017	CF ₃	CH ₂		
B2.018	CF ₃	CH ₂		
B2.019	CF ₃	CH ₂		
B2.020	CF ₃	CH ₂		
B2.021	CF ₃	CH ₂		
B2.022	CF ₃	CH ₂		
B2.023	CF ₃	CH ₂		

Table B3: Compounds of formula IAb₃:

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Comp. No.	R ₃	L		Phys. data
B3.001	CF ₃	CH ₂		
B3.002	CF ₂ H	CH ₂		
B3.003	CF ₃	CH ₂		
B3.004	CF ₃	CH ₂		
B3.005	CF ₃	CH ₂		
B3.006	CF ₃	CH ₂		
B3.007	CF ₃	CH ₂		
B3.008	CF ₃	CH ₂		
B3.009	CF ₃	CH ₂		
B3.010	CF ₃	CH ₂		
B3.011	CF ₃	CH ₂		
B3.012	CF ₃	CH ₂		
B3.013	CF ₃	CH ₂		
B3.014	CF ₃	CH ₂		
B3.015	CF ₃	CH ₂		

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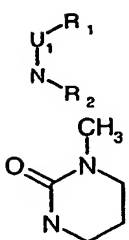
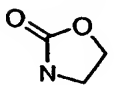
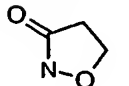
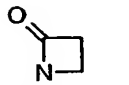
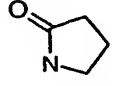
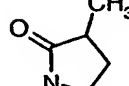
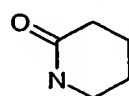
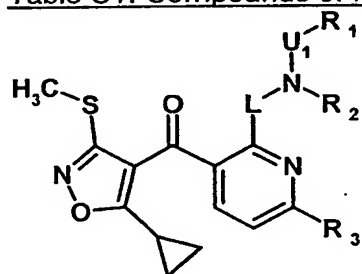
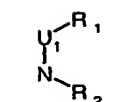
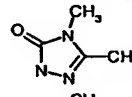
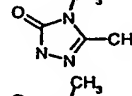
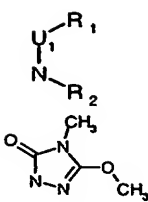
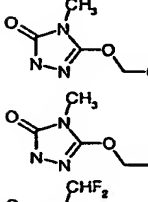
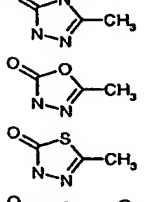
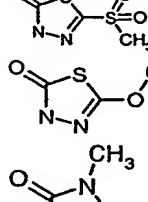
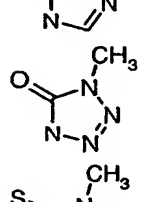
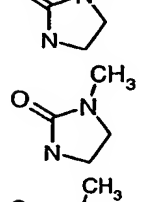
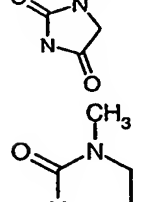
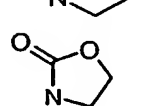

Comp. No.	R ₃	L		Phys. data
B3.016	CF ₃	CH ₂		
B3.017	CF ₃	CH ₂		
B3.018	CF ₃	CH ₂		
B3.019	CF ₃	CH ₂		
B3.020	CF ₃	CH ₂		
B3.021	CF ₃	CH ₂		
B3.022	CF ₃	CH ₂		

Table C1: Compounds of formula IAC₁:(IAC₁)

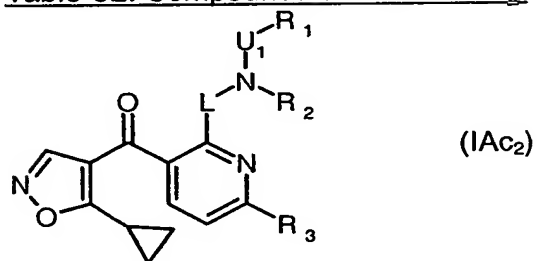
Comp. No.	R ₃	L		Phys. data
C1.001	CF ₃	CH ₂		
C1.002	CF ₂ H	CH ₂		
C1.003	CF ₃	CH ₂		

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Comp. No.	R ₃	L		Phys. data
C1.004	CF ₃	CH ₂		
C1.005	CF ₃	CH ₂		
C1.006	CF ₃	CH ₂		
C1.007	CF ₃	CH ₂		
C1.008	CF ₃	CH ₂		
C1.009	CF ₃	CH ₂		
C1.010	CF ₃	CH ₂		
C1.011	CF ₃	CH ₂		
C1.012	CF ₃	CH ₂		
C1.013	CF ₃	CH ₂		
C1.014	CF ₃	CH ₂		
C1.015	CF ₃	CH ₂		
C1.016	CF ₃	CH ₂		
C1.017	CF ₃	CH ₂		
C1.018	CF ₃	CH ₂		


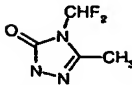
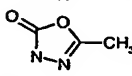
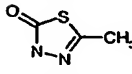
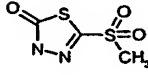
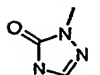
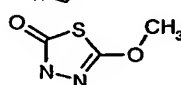
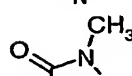
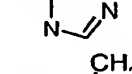
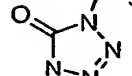
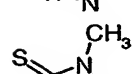
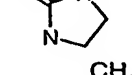
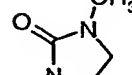
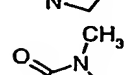
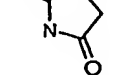
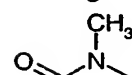
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Comp. No.	R ₃	L		Phys. data
C1.019	CF ₃	CH ₂		
C1.020	CF ₃	CH ₂		
C1.021	CF ₃	CH ₂		
C1.022	CF ₃	CH ₂		
C1.023	CF ₃	CH ₂		

Table C2: Compounds of formula IAC₂:

Comp. No.	R ₃	L		Phys. data
C2.001	CF ₃	CH ₂		
C2.002	CF ₂ H	CH ₂		
C2.003	CF ₃	CH ₂		
C2.004	CF ₃	CH ₂		
C2.005	CF ₃	CH ₂		
C2.006	CF ₃	CH ₂		

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Comp. No.	R ₃	L		Phys. data
C2.007	CF ₃	CH ₂		
C2.008	CF ₃	CH ₂		
C2.009	CF ₃	CH ₂		
C2.010	CF ₃	CH ₂		
C2.011	CF ₃	CH ₂		
C2.011	CF ₃	CH ₂		
C2.012	CF ₃	CH ₂		
C2.013	CF ₃	CH ₂		
C2.014	CF ₃	CH ₂		
C2.015	CF ₃	CH ₂		
C2.016	CF ₃	CH ₂		
C2.017	CF ₃	CH ₂		
C2.018	CF ₃	CH ₂		
C2.019	CF ₃	CH ₂		
C2.020	CF ₃	CH ₂		

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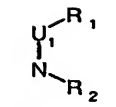
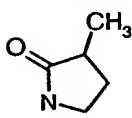
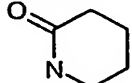
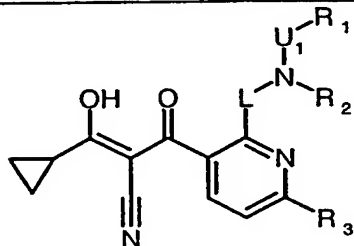
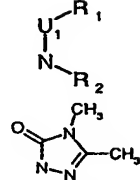
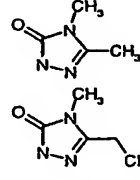
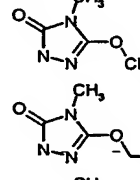
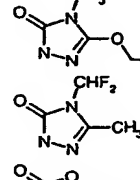
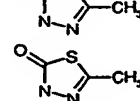

Comp. No.	R ₃	L		Phys. data
C2.021	CF ₃	CH ₂		
C2.022	CF ₃	CH ₂		
C2.023	CF ₃	CH ₂		

Table D1: Compounds of formula IAd:

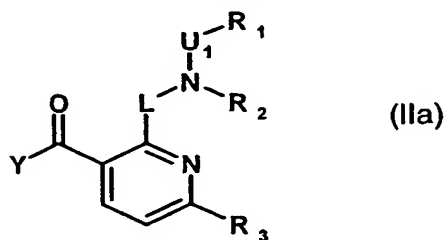
(IAd₁)

Comp. No.	R ₃	L		Phys. data
D1.001	CF ₃	CH ₂		
D1.002	CF ₂ H	CH ₂		
D1.003	CF ₃	CH ₂		
D1.004	CF ₃	CH ₂		
D1.005	CF ₃	CH ₂		
D1.006	CF ₃	CH ₂		
D1.007	CF ₃	CH ₂		
D1.008	CF ₃	CH ₂		
D1.009	CF ₃	CH ₂		

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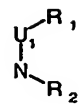
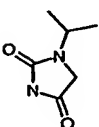


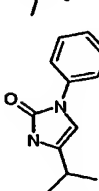
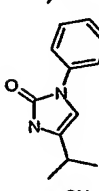
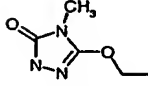
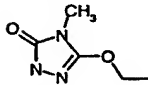
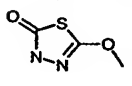
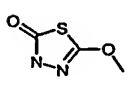
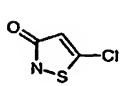
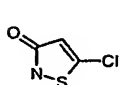
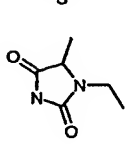
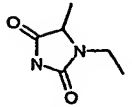
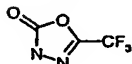
Comp. No.	R ₃	L		Phys. data
D1.010	CF ₃	CH ₂		
D1.011	CF ₃	CH ₂		
D1.012	CF ₃	CH ₂		
D1.013	CF ₃	CH ₂		
D1.014	CF ₃	CH ₂		
D1.015	CF ₃	CH ₂		
D1.016	CF ₃	CH ₂		
D1.017	CF ₃	CH ₂		
D1.018	CF ₃	CH ₂		
D1.019	CF ₃	CH ₂		
D1.020	CF ₃	CH ₂		
D1.021 -	CF ₃	CH ₂		
D1.022	CF ₃	CH ₂		
D1.023	CF ₃	CH ₂		

Table S1: Compounds of formula II:

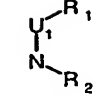
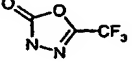
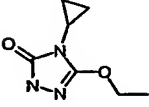
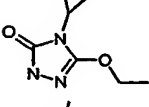
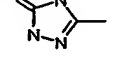
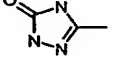


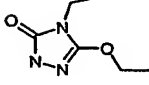
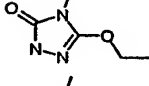
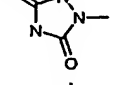
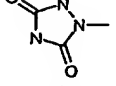
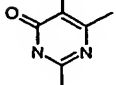
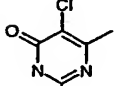
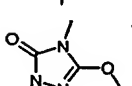
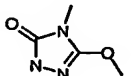


Comp. No.	Y	R ₃	L		Phys. data
S1.001 (P7)	OH	CF ₂ Cl	CH ₂		amorphous crystals
S1.002	OC ₂ H ₅	CF ₃	CH ₂		132-133 °C
S1.003	OH	CF ₃	CH ₂		amorphous crystals
S1.004 (P4)	OH	CF ₃	CH ₂		amorphous crystals
S1.005	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.006	OH	CF ₃	CH ₂		solid
S1.007	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.008	OH	CF ₃	CH ₂		m.p.: 210°C
S1.009	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.010	OH	CF ₃	CH ₂		m.p.: 145°C
S1.011	OC ₂ H ₅	CF ₃	CH ₂		solid

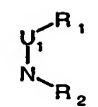
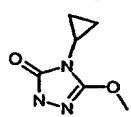
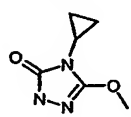
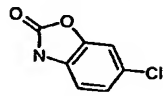
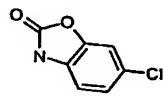
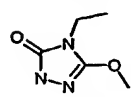
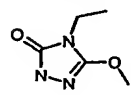
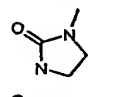
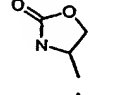
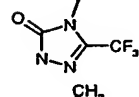
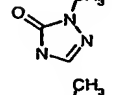
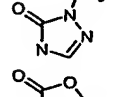
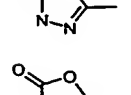
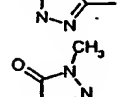
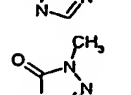
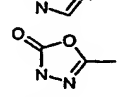
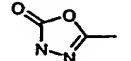

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Comp. No.	Y	R ₃	L		Phys. data
S1.012	OH	CF ₃	CH ₂		m.p.: 189°C
S1.013	OC ₂ H ₅	CF ₃	CH ₂		m.p.: 91°C
S1.014	OH	CF ₃	CH ₂		solid
S1.015	OC ₂ H ₅	CF ₃	CH ₂		m.p.: 109°C
S1.016	OH	CF ₃	CH ₂		m.p.: 191°C
S1.017	OC ₂ H ₅	CF ₃	CH ₂		waxy
S1.018	OH	CF ₃	CH ₂		solid
S1.019	OC ₂ H ₅	CF ₃	CH ₂		m.p.: 82°C
S1.020	OH	CF ₃	CH ₂		m.p.: 142°C
S1.021	OC ₂ H ₅	CF ₃	CH ₂		resin
S1.022	OH	CF ₃	CH ₂		solid
S1.023	OC ₂ H ₅	CF ₃	CH ₂		m.p.: 114°C
S1.024	OH	CF ₃	CH ₂		m.p.: 165°C
S1.025	OC ₂ H ₅	CF ₃	CH ₂		



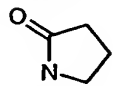
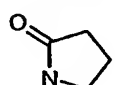

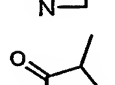
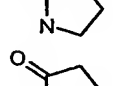
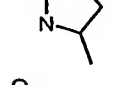

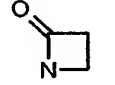
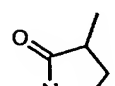
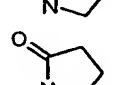

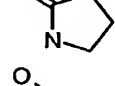
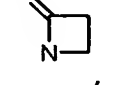
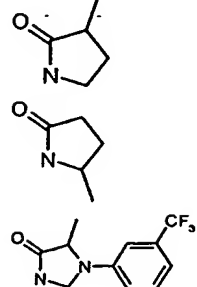
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Comp. No.	Y	R ₃	L		Phys. data
S1.026	OH	CF ₃	CH ₂		m.p.: 128°C
S1.027	OC ₂ H ₅	CF ₃	CH ₂		m.p.: 123°C
S1.028	OH	CF ₃	CH ₂		m.p.: 166°C
S1.029	OC ₂ H ₅	CF ₃	CH ₂		m.p.: 116°C
S1.030	OH	CF ₃	CH ₂		m.p.: 174°C
S1.031	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.032	OH	CF ₃	CH ₂		m.p.: 184°C
S1.033	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.034	OH	CF ₃	CH ₂		solid
S1.035	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.036	OH	CF ₃	CH ₂		solid
S1.037	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.038	OH	CF ₃	CH ₂		solid
S1.039	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.040	OH	CF ₃	CH ₂		solid

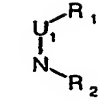
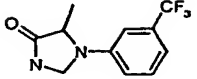
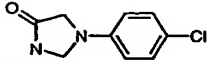
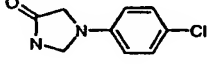
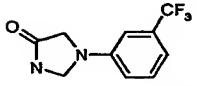
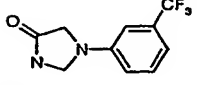
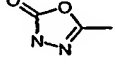
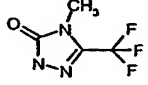
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Comp. No.	Y	R ₃	L		Phys. data
S1.041	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.042	OH	CF ₃	CH ₂		solid
S1.043	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.044	OH	CF ₃	CH ₂		solid
S1.045	OC ₂ H ₅	CF ₃	CH ₂		solid
S1.046	OH	CF ₃	CH ₂		solid
S1.047 (P6)	OH	CF ₃	CH ₂		solid
S1.048	OH	CF ₃	CH ₂		solid
S1.049	OH	CF ₃	CH ₂		crystalline
S1.050	OC ₂ H ₅	CClF ₂	CH ₂		m.p.: 87-88°C
S1.051	OH	CClF ₂	CH ₂		m.p.: 180-182°C
S1.052	OC ₂ H ₅	CClF ₂	CH ₂		
S1.053	OH	CClF ₂	CH ₂		m.p.: 173-174°C
S1.054	OC ₂ H ₅	CCHF ₂	CH ₂		
S1.055	OH	CCHF ₂	CH ₂		
S1.056	OC ₂ H ₅	CCHF ₂	CH ₂		resin
S1.057	OH	CCHF ₂	CH ₂		

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Comp. No.	Y	R ₃	L		Phys. data
S1.058	OC ₂ H ₅	CCHF ₂	CH ₂		
S1.059	OH	CF ₃	CH ₂		solid
S1.060	OH	CF ₃	CH ₂ OCH ₂ CH ₂		solid
S1.061	OH	CF ₃	CH ₂		solid
S1.062	OH	CF ₃	CH ₂		solid
S1.063	OH	CF ₃	CH ₂		solid
S1.064	OH	CClF ₂	CH ₂		
S1.065	OH	CClF ₂	CH ₂		
S1.066	OH	CClF ₂	CH ₂		
S1.067	OH	CClF ₂	CH ₂		
S1.068	OH	CHF ₂	CH ₂		
S1.069	OH	CHF ₂	CH ₂		
S1.070	OH	CHF ₂	CH ₂		
S1.071	OH	CHF ₂	CH ₂		
S1.072	OC ₂ H ₅	CF ₃	CH ₂		m.p.: 122°C

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Comp. No.	Y	R ₃	L		Phys. data
S1.073	OH	CF ₃	CH ₂		m.p.: 182°C
S1.074	OC ₂ H ₅	CF ₃	CH ₂		m.p.: 132°C
S1.075	OH	CF ₃	CH ₂		m.p.: 255°C
S1.076	OC ₂ H ₅	CF ₃	CH ₂		m.p.: 113°C
S1.077	OH	CF ₃	CH ₂		m.p.: 228°C
S1.078 (P5)	OC ₂ H ₅	CF ₃	CH ₂		amorphous crystals
S1.079 (P7)	OC ₂ H ₅	CF ₂ Cl	CH ₂		resin

Biological Examples

Example B1: Herbicidal action prior to emergence of the plants (pre-emergence action)

Monocotyledonous and dicotyledonous test plants are sown in standard soil in plastic pots. Immediately after sowing, the test compounds, in the form of an aqueous suspension (prepared from a 25 % wettable powder (Example F3, b) according to WO 97/34485) or in the form of an emulsion (prepared from a 25 % emulsifiable concentrate (Example F1, c)), are applied by spraying in a concentration corresponding to 125 g or 250 g of active ingredient/ha (500 litres of water/ha). The test plants are then grown in a greenhouse under optimum conditions. After a test duration of 3 weeks, the test is evaluated in accordance with a scale of nine ratings (10 = total damage, 0 = no action). Ratings of from 10 to 7 (especially from 10 to 8) indicate good to very good herbicidal action.

Table B1: Pre-emergence action of compounds of formula I:

Ex.No.	gr. a.i./ha	<i>Panicum</i>	<i>Echino- chloa</i>	<i>Cyperus</i>	<i>Scirpus</i>	<i>Sida</i>	<i>Abutilon</i>	<i>Ama- ranthus</i>	<i>Cheno- podium</i>
A1.055	250	9	10	10	9	10	10	0	10
A1.073	250	10	3	10	10	9	10	10	10
A1.079	250	9	5	8	10	10	10	4	8
A1.091	250	4	9	8	9	7	10	8	9
A6.073	250	10	0	7	10	9	10	9	10
A6.079	250	9	7	6	9	6	10	7	10
A6.100	250	10	10	6	10	10	10	10	10
A8.008	250	10	10	0	0	10	10	nt	10
A8.080	250	9	10	0	8	9	10	0	10
B1.008	250	10	9	9	10	9	10	10	10
B1.080	250	10	10	9	9	0	8	0	10
B1.096	250	7	nt	7	7	7	10	10	10
B1.170	250	9	9	8	9	9	9	9	10

Example B2: Post-emergence herbicidal action

In a greenhouse, monocotyledonous and dicotyledonous test plants are grown in standard soil in plastic pots and at the 4- to 6-leaf stage are sprayed with an aqueous suspension of the test compounds of formula I prepared from a 25 % wettable powder (Example F3, b) according to WO 97/34485) or with an emulsion of the test compounds of formula I prepared from a 25 % emulsifiable concentrate (Example F1, c) according to WO 97/34485), in a concentration corresponding to 125 g or 250 g of active ingredient/ha (500 litres of water/ha). The test plants are then grown on in a greenhouse under optimum conditions. After a test duration of about 18 days, the test is evaluated in accordance with a scale of nine ratings (10 = total damage, 0 = no action). Ratings of from 10 to 7 (especially from 10 to 8) indicate good to very good herbicidal action. The compounds of formula I exhibit a strong herbicidal action in this test.

Table B2: Post-emergence action of compounds of formula I:

Ex.No	gr. a.i./ha	<i>Echino- chloa</i>	<i>Euphor- bia</i>	<i>Xanthium</i>	<i>Ipomea</i>	<i>Amaran- thus</i>	<i>Cheno- podium</i>	<i>Sinapis</i>	<i>Stellaria</i>
A1.001	125	4	4	8	8	8	9	8	8
A1.007	250	8	4	9	9	9	10	8	7
A1.019	250	8	9	9	9	9	9	8	8
A1.031	250	7	8	9	9	9	10	8	9
A1.037	250	4	8	9	9	9	9	8	8
A1.043	250	7	7	9	9	9	9	6	9
A1.049	250	8	9	9	9	9	8	8	8
A1.073	250	9	9	9	10	10	10	10	10
A1.079	250	7	8	7	8	9	9	9	9
A1.091	250	9	8	9	9	9	10	8	10
A1.109	250	8	10	9	9	9	10	3	5
A1.115	250	7	8	9	7	9	9	3	9
A1.181	250	4	8	8	8	9	8	5	7
A1.202	250	8	9	9	9	9	8	8	7
A6.073	250	9	9	9	10	10	10	10	9
A6.082	250	7	7	7	8	8	9	5	9
A6.091	250	9	8	9	8	8	9	8	9
A6.097	250	7	7	7	7	7	9	8	9
A6.100	250	7	7	7	9	9	10	8	9
A7.008	250	7	7	8	7	5	9	9	9
A7.009	250	7	7	7	7	4	9	8	7
A8.008	250	8	8	9	9	9	8	7	6
A8.062	250	9	9	0	8	9	10	9	5
A8.080	250	9	9	8	10	9	10	10	10

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Ex.No	gr. a.i./ha	<i>Echino- chloa</i>	<i>Euphor- bia</i>	<i>Xanthium</i>	<i>Ipomea</i>	<i>Amaran- thus</i>	<i>Cheno- podium</i>	<i>Sinapis</i>	<i>Stellaria</i>
A8.095	250	9	0	8	9	9	5	8	7
A8.174	250	0	7	7	8	8	9	7	7
B1.004	250	8	9	9	8	8	9	10	8
B1.005	250	4	9	6	8	9	9	9	8
B1.008	250	9	8	nt	9	9	10	7	8
B1.039	250	9	9	8	8	6	8	9	9
B1.050	250	4	9	8	7	9	9	9	7
B1.056	250	9	9	0	10	9	8	8	7
B1.062	250	4	9	6	7	9	9	8	8
B1.080	250	9	10	8	10	10	10	10	10
B1.096	250	6	7	8	7	7	10	9	8
B1.158	250	4	7	5	8	7	8	7	7
B1.170	250	9	7	6	0	9	9	9	9
B1.194	250	9	9	9	7	9	9	7	8

In a different test arrangement, the Examples according to Table B3 likewise exhibit good to very good post-emergence action on selected test plants.

Table B3:

Ex.No	gr. a.i./ha	<i>Amaranthus</i>	<i>Solanum</i>	<i>Nasturtium</i>	<i>Stellaria</i>
A1.025	250	9	9	9	9
A1.097	250	9	9	10	9
A1.175	250	7	9	8	7
A1.209	250	7	9	9	7

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Ex.No	gr. a.i./ha	<i>Amaranthus</i>	<i>Solanum</i>	<i>Nasturtium</i>	<i>Stellaria</i>
A1.211	250	9	9	10	7
A1.213	250	9	9	9	9
A1.219	250	9	9	10	10
A1.220	250	9	9	10	10
A1.221	250	9	9	10	9
A1.222	250	9	9	10	9
A1.223	250	8	9	10	9
A1.237	250	9	10	9	7
B1.211	250	9	9	10	8
B1.223	250	8	9	10	10
B1.225	250	8	9	10	10
B1.226	250	8	9	10	9
B1.238	250	9	9	8	7
B1.297	250	9	9	10	9